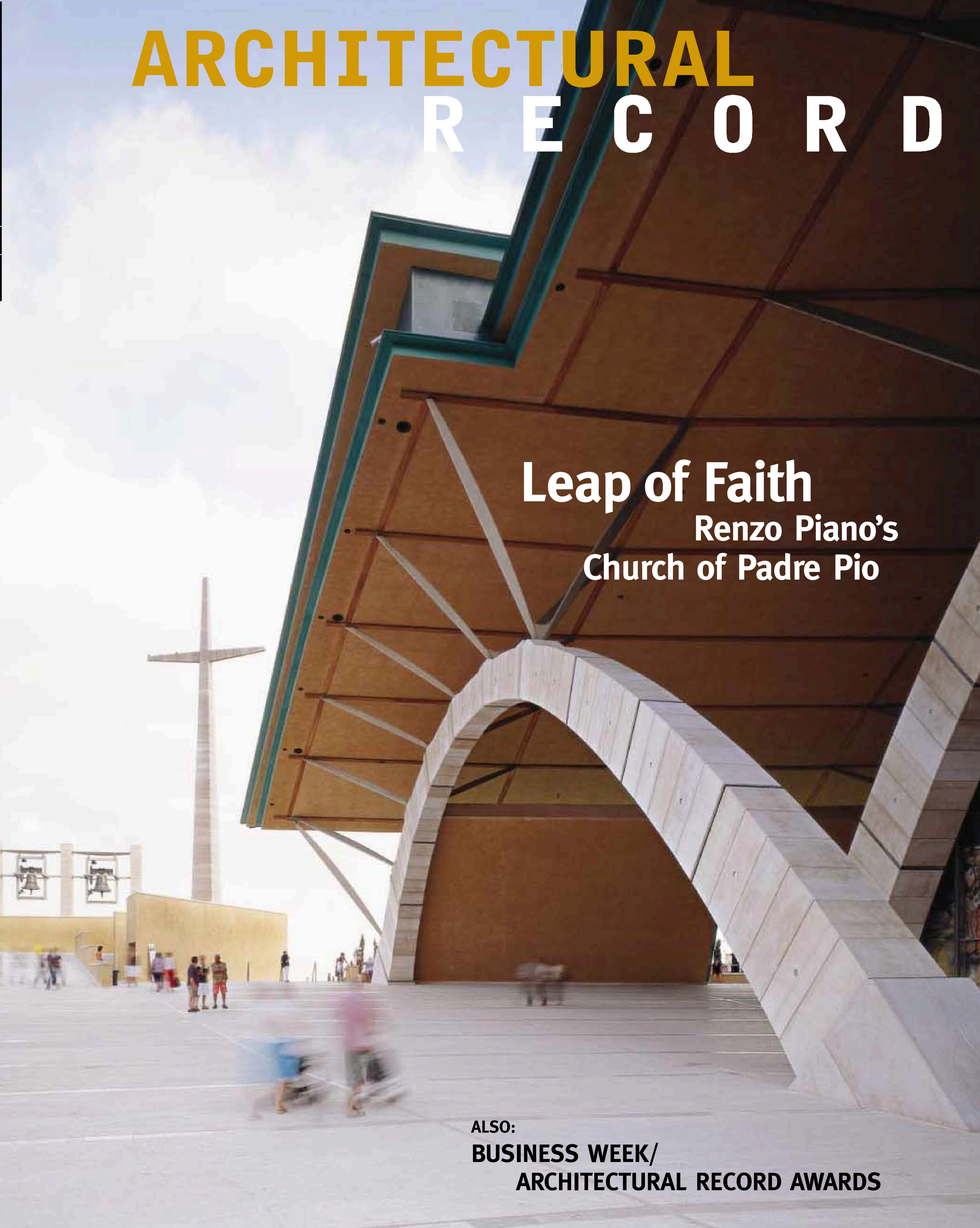

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WEB PRODUCTION	Laurie Meisel, *laurie_meisel@mcgraw-hill.com*
EDITORIAL SUPPORT	Linda Ransey, *linda_ransey@mcgraw-hill.com*
	John Wilson, *john_wilson@mcgraw-hill.com*
EDITORIAL ASSISTANTS	Audrey Beaton, *audrey_beaton@mcgraw-hill.com*
	James Murdock, *james_murdock@mcgraw-hill.com*

EDITOR AT LARGE	James S. Russell, AIA, *jamesrussell_editor@earthlink.net*
SPECIAL CORRESPONDENT	Suzanne Stephens, *suzanne_stephens@mcgraw-hill.com*
COPY EDITOR	Leslie Yudell
ILLUSTRATORS	I-Ni Chen
CONTRIBUTING EDITORS	Raul Barreneche, Robert Campbell, FAIA, Andrea Oppenheimer Dean, David Dillon, Francis Duffy, Lisa Findley, Blair Kamin, Elizabeth Harrison Kubany, Nancy Levinson, Thomas Mellins, Robert Murray, Sheri Olson, FAIA, Nancy B. Solomon, AIA, Michael Sorkin, Michael Speaks, Tom Vonier, FAIA
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GROUP PUBLISHER	James H. McGraw IV, *jay_mcgraw@mcgraw-hill.com*
VP, ASSOCIATE PUBLISHER	Laura Viscusi, *laura_viscusi@mcgraw-hill.com*
VP, MARKETING AND BUSINESS DEVELOPMENT	David Johnson, *dave_johnson@mcgraw-hill.com*
VP, GROUP EDITORIAL DIRECTOR	Robert Ivy, FAIA, *rivy@mcgraw-hill.com*
GROUP DESIGN DIRECTOR	Anna Egger-Schlesinger, *schlesin@mcgraw-hill.com*
MANAGER, RESEARCH	Ellen Halfond, *ellen_halfond@mcgraw-hill.com*
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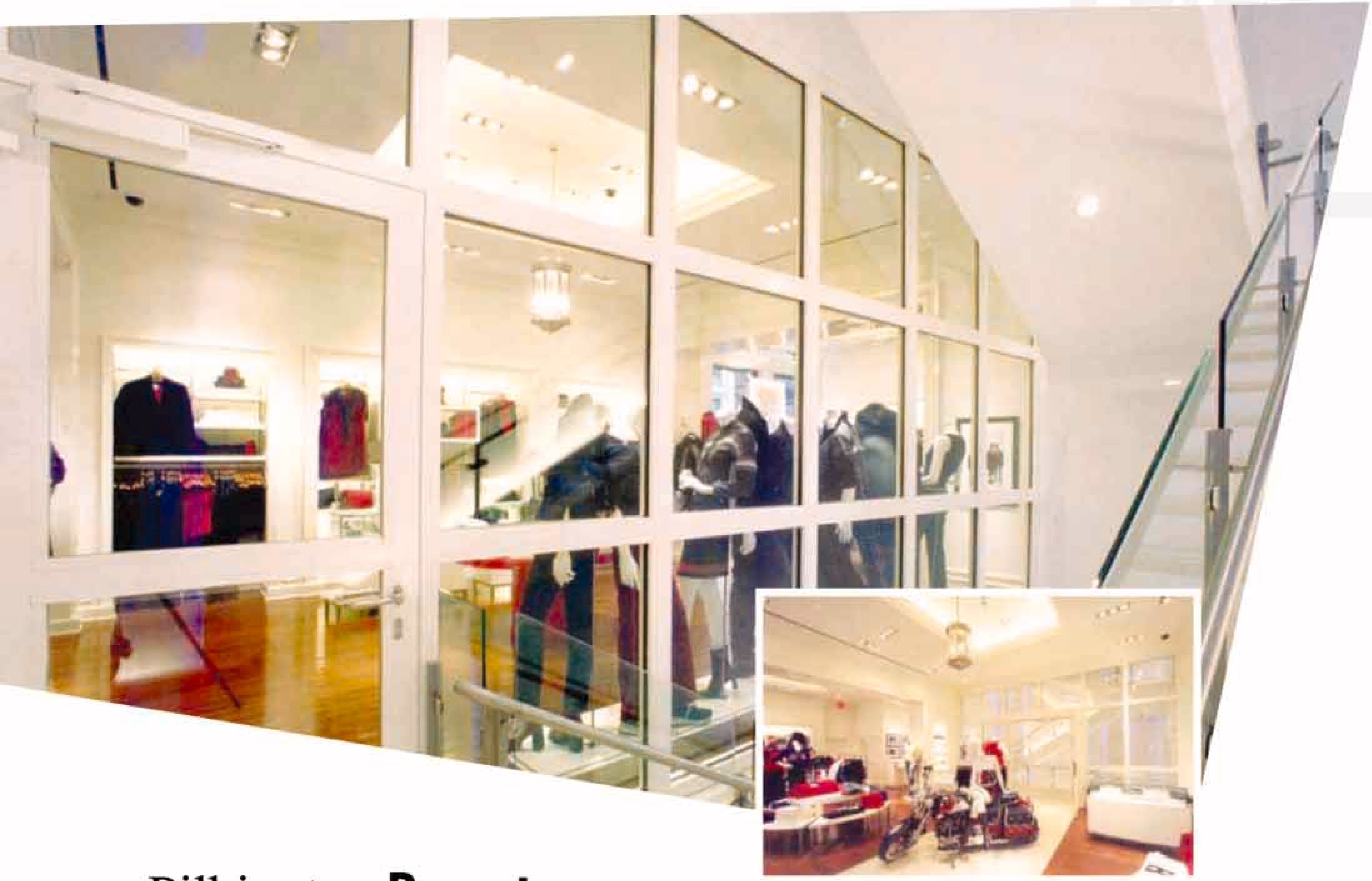

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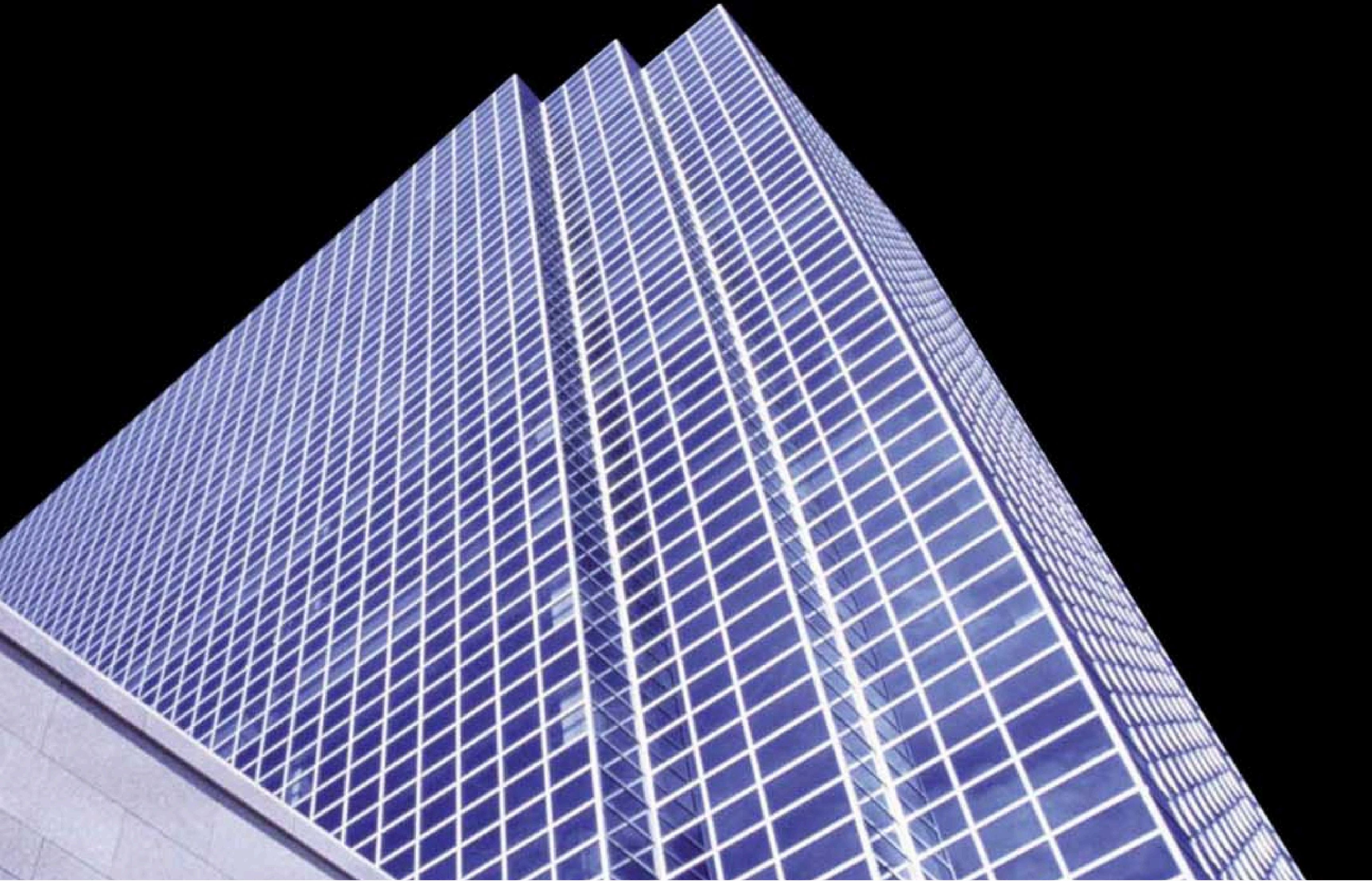

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On the Cover: *Church of Padre Pio, by Renzo Piano Building Workshop. Photograph by Christian Richters*

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Venice Biennale

Our Web site provides you with an insider's look at the U.S. Pavilion and the talented young architects that made the show a success. You'll find opening-party pictures and audio commentary from the participating architects.

Japan Library, Competition Entry, 2003
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You're invited into the newly designed home of an architect-couple who had to find the time to complete this personal project. Also, an Australian "Young Gun" gets the opportunity to show his designs internationally.

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Equinox at Columbus Circle, New York City
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Lighting

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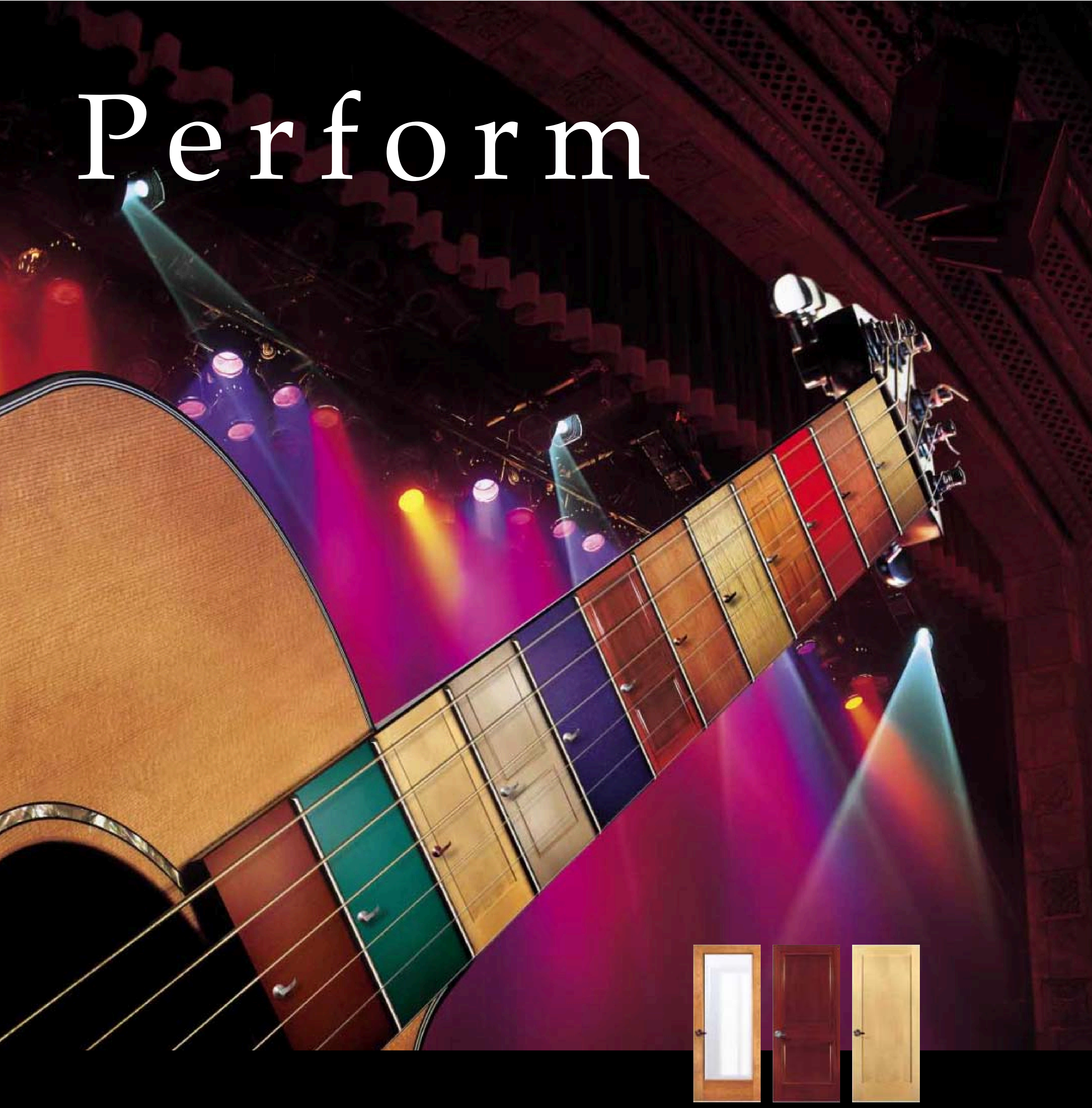

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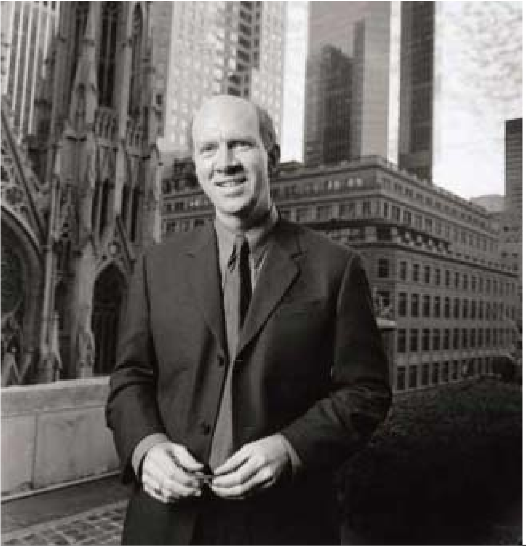

Homecomings

Editorial

By Robert Ivy, FAIA

On campuses across the United States, fall brings homecomings, which tend toward beer-laced nostalgia amid the swirling autumnal leaves. Some of us will return to architecture schools, shudder as we pass through the design labs, puzzle over incomprehensible student work, clap old friends on the back, eat and drink to excess, then gratefully retreat to paying jobs.

One university's graduates have cause for another kind of celebration—an unanticipated one. On October 22, graduates of Tulane University's architecture program gathered for a ceremony celebrating the retroactive conferral of the Masters of Architecture degree. You heard that correctly: Throughout most of its long history, the Tulane School of Architecture offered the B.Arch. as the first professional degree. In May, with a wave of the academic wand, those degrees automatically converted to a master's.

In renaming its degree after the fact, Tulane (which now grants the M.Arch. and the Ph.D.) joins an extremely short list of other universities; 13 schools of architecture offer a 5-year M.Arch. program at present. While such a gift to its graduates might seem precipitate, there is precedent in legal education. Forty years ago, the American Bar Association recommended that the Juris Doctor (J.D.) replace the more ordinary LL.B.

Certainly, the granting of degrees involves more than pleased alumni; larger benefits should accrue from the action, and the arguments for the M.Arch. are several. The first is clarity: For most people in the larger world, a bachelor's diploma signifies a 4-year undergraduate degree. Few outside of architecture's inner circle understand that the B.Arch. is designated as a "First Professional Degree," or that it stands for a 5-year education often accompanied by a thesis or other rigorous requirements.

Although the public admires architects and architecture, few understand what we do, much less care how we are schooled. Unfortunately, we've only compounded the confusion. For all of our vaunted love of order, we have created a cholesterol-clogged education system jammed with choices and resulting diplomas. Who can parse them out? Alternative programs, from the B.A. in Architecture to the 3-year accelerated master's to the 4+2 clutter our understanding. In such a polyglot environment, some consistency is called for; everyone understands the master's.

To the need for clarity, add degree inflation. We all know that the master's has become de rigueur for anyone with the hope of teaching on a university campus, including valued practitioners hoping to return to the classroom. Unfortunately, the perception of the B.Arch. has become devalued on campuses overrun with Ph.D.'s, ergo a strong impetus for change. There would be much homework to accomplish to ensure that the pedagogical system be equal to the designation.

No one suggests the master's as a panacea for fundamental problems surrounding architectural education. Our best minds, including the five collateral organizations with a stake in the efficacy of architectural education, have been debating the pros and cons for years. Some programs simply are not suited for the master's, and others will chafe at the notion. However, for those of us bobbing about in society at large, including the editor in chief of ARCHITECTURAL RECORD (yours truly is one of those graduates who pursued an accelerated 3-year program following a liberal arts degree, resulting nonsensically in two bachelor's degrees), the M.Arch. offers a recognizable standard that elevates our position and allows us to hold our heads higher. This is a retroactive ceremony well worth a homecoming.

The implications of Tulane's largesse remain unclear. But as Joanna Lombard stated in a paper for the ACSA in 1997, "If law schools are an example, then without a specific degree mandate from any of the five architecture organizations, individual schools will set the course." The time for consensus in architectural education has come, or outside forces may force us into unanticipated or unwelcome change.

Robert Ivy

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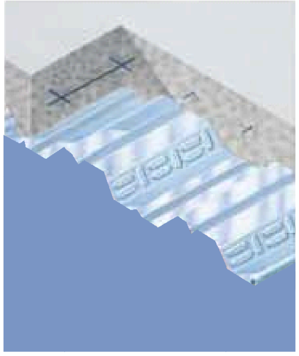

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Letters

Lasting words

Thanks for your October editorial on Fay Jones [page 17]. He was a wonderful individual. He once told me, "Don't ask a material to do something it does not want to do—don't embarrass the material." I thought that was so appropriate. He thought of the whole building in the same manner, with its relationship to the natural world.

Eddie Cazayoux
Lafayette, La.

Compromising positions?

It is very distressing to see a professional trade magazine such as ARCHITECTURAL RECORD publish an overtly offensive back cover [September, 2004]! Several employees in my firm did not comprehend why the editorial staff would permit such an advertisement. I would hope that the allure of the advertising revenue generated by a cover would not cloud the editorial staff's judgment in what is appropriate for this publication. The suggestive and compromising position of the androgynous person in the "background" of the advertisement did not titillate any employees in my firm, either male or female. I am not sure what message is to be conveyed, but I trust in the future you will exercise better judgment. I think the premier professional periodical of the AIA deserves nothing less.

Donald D. Searle, AIA
Lancaster, Pa.

Into the void

I find it surprising that September's Record News story, "Ground Zero—Three Years Later" [page 46], never used the term *urban design* in the discussion of what has been happening downtown. This potpourri discussion about the sacred site perfectly mimics the design process. It is time that architects and citizens wake up and understand that the big architectural agglomerations of gesturing signature buildings do not constitute urban design. The art of urban design only minimally involves building form and is mostly about making the form of the void. If there is any possibility of making places of "hope" and "remembrance," it will be in the design of the voids, not the solids. I would argue that it is axiomatic that the more the solids are out gesturing and ignoring one another, rather than working to make space, the more difficult it is to make a significant, meaningful, and beautiful place.

Michael Schwarting
Director, New York Institute of Technology Graduate Program in Urban and Regional Design; Partner, Campani and Schwarting Architects
Port Jefferson, N.Y.

Heroic applause

Thank you for identifying Santiago Calatrava as one of the heroes of the 2004 Summer Olympics in your September editorial [page 19]. The media seemed to glorify the winners and put down the losers and cheaters of the Athens games. And everyone seemed to focus on the security issue and the fact that the construction timeline was buttoned up to the last button. Not mentioning Calatrava as a part of the Olympics is like not mentioning a stage designer for a play.

From these Olympic Games we are left not only with an image of the Parthenon, but also images of the arched Olympic Stadium, the Velodrome, the Cauldron, the elegant Agora, the Plaza of Nations, the Entrance Plazas, and the Olympic Fountain. Let's hope that the 2008 Summer Olympics will create similar images for us.

Andy Leja
Orland Park, Ill.

LEED-ing the way

I was surprised, as the finishing touches are put on our project at the University of South Carolina—which is going for a Gold LEED Certification and was designed with the help of BIM (Autodesk Revit)—to learn from Ken Sanders's article that "BIM isn't working yet" [Tech Commentary, September 2004, page 181].

On behalf of the firms and architects who are making hay while the masses sleep, a more accurate statement might be, "There exists a major technology gap in which those daring enough to adapt new technology into their services are providing value to their clients that is way beyond that provided by the masses."

It strikes me that the bigger story is that there is technology available right now that can, for instance, make sustainable design more manageable and "doable" by mainstream architects (by allowing solar access and day-lighting design within the design/documentation model) or can bring store merchandising design and fixture management together in ways never before possible (by allowing visualization and building content management together in the same program).

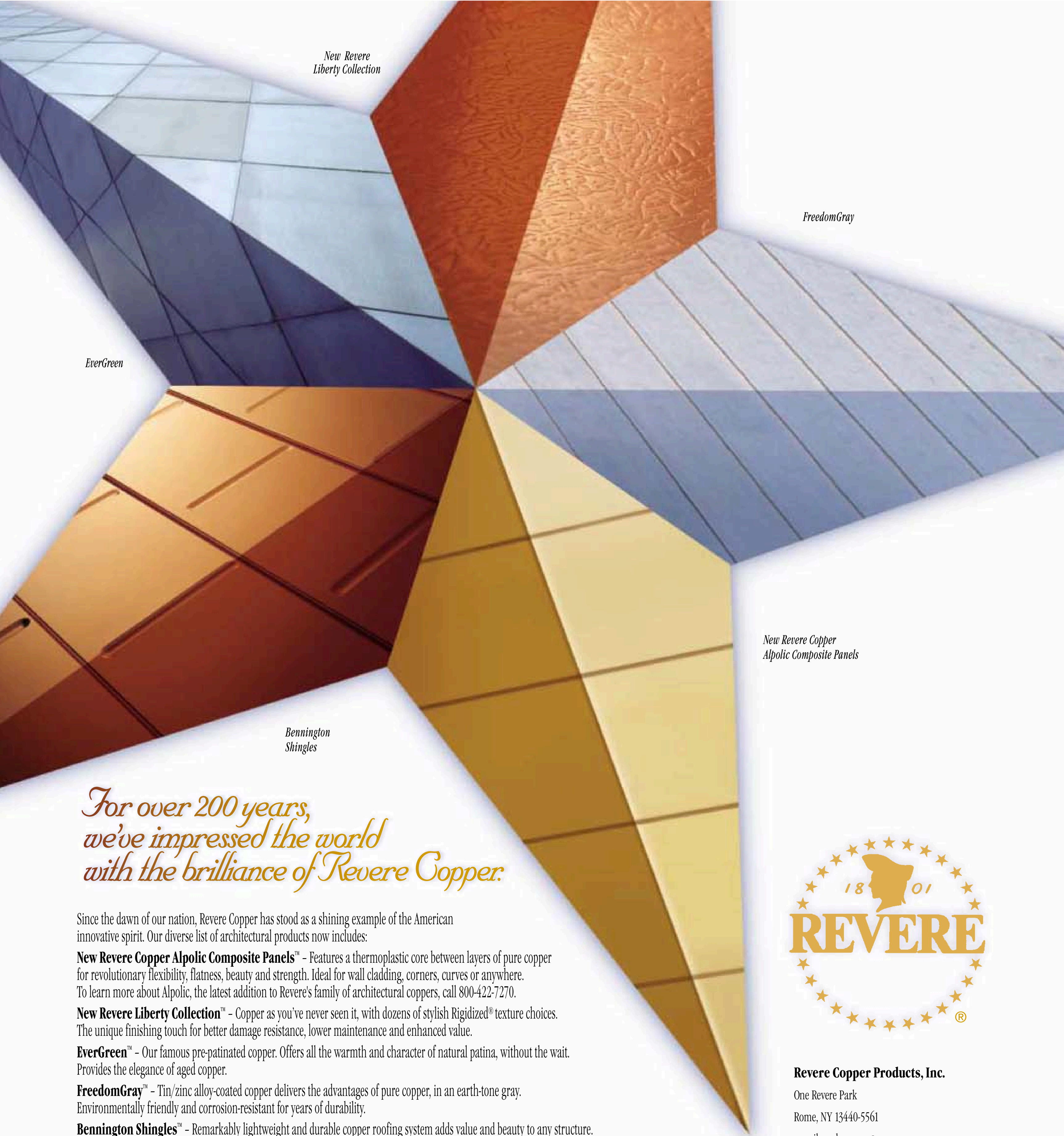
Sanders is correct that the value proposition would be greatly enhanced by a more integrated design-construct process in which more, or all, of the building's stakeholders are working together. The power of this idea has been proven by the holistic, sustainable design process, which can produce better buildings for the same cost. But, it is also true that if architects wait for "broad client demand for 3D building models," they will be left holding a very empty bag.

Jim Gleeson, AIA
Design Integration
Charlotte, N.C.

Corrections:

In the October Product Briefs, the description of the R-Steel wall panel system [page 236] should have listed the R-Steel Web site as www.r-steel.com. R-Steel is a BlueScope Steel Company. In the October Record News story "Will Number Crunching Fix Architecture's Diversity Crisis?" [page 40], the names of the following associations were inaccurate: They should be Association of Collegiate Schools of Architecture (ACSA), National Council of Architectural Registration Boards (NCARB), and National Architectural Accrediting Board (NAAB). In another October news item, "In Memoriam" [page 31], the caption for the second picture from the right was misidentified—the church in the photograph is Eero Saarinen's North Christian Church in Columbus, Indiana. Also in October's news, the story "Writers Serve as Muses for Architects' Projects in Princeton" [page 42] failed to list Ronald Berlin, AIA, as the architect of the project for Paul Krugman. Additionally, in a caption for the Krugman project, Gil Rampy, instead of Berlin, was listed as the architect. The architect name for Vista House in October's Residential section [page 219] was misspelled: The firm name is Simon Conder Associates. The introduction to that section [page 201] incorrectly noted that one home is situated on an island; in fact, House of Silence is a lakeside residence in southeastern Finland. September's perspective image of the Urban Design and Landscape Master Plan for the 2008 Beijing Olympics [page 27] should have been credited to Sasaki Associates. In the June archrecord2 story, "High Design Hits the Spot" [page 100], Rocio Romero should have been noted as the co-designer for Skid Row's Service Spot.

Write to rivy@mcgraw-hill.com.



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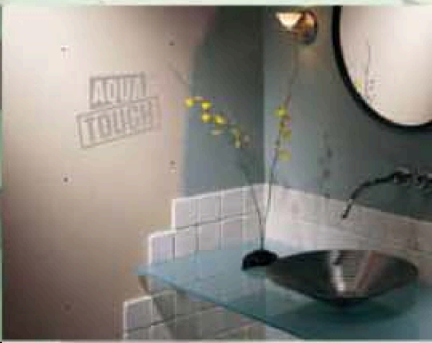

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ALCAN COMPOSITES

Record News

Highlights Major fall projects opening p. 28
High Line announces winners p. 30
Vietnam Vet Memorial Education Center p. 32
Inflatable monument for Paris p. 34

Gehry, Snøhetta to design cultural facilities at Ground Zero

Essentially completing its architecture-firm selections for the design of buildings at Ground Zero, the Lower Manhattan Development Corporation (LMDC) announced on October 12 the choice of Frank Gehry and Norwegian firm Snøhetta to create preliminary schemes for the performing arts and museum complexes at the World Trade Center site.

Gehry, recently chosen to design an office project in Manhattan and a stadium and mixed-use complex in Brooklyn, will add to his newfound New York presence with what is perhaps one of the most important commissions of his impressive career. His firm, Frank O. Gehry and Partners, will design the Signature Theater, for drama, and the Joyce Theater, for dance. The LMDC said in June that the Signature would house 499-seat and 299-seat theaters, and the Joyce would have a 900–1,000-seat theater, though the figures are still tentative.

Gehry could not be reached for comment, but he said in an emotional written statement that his first look at the site brought tears to his eyes. “In the end, having theater and dance and beauty is kind of a wonderful legacy for the memory of the people that were lost,” he noted.

Unlike the choice of long-established designer Gehry, the selection of Snøhetta instantly catapults the rising firm into the architectural elite, at least by the standards of recognizability. Founded in 1989, the firm has designed the Alexandria Library in Egypt, the Norwegian Embassy in Berlin, and the soon-to-be-completed National Opera in Oslo, and is known for designs that mesh with their surrounding landscapes.

“It is almost too exciting,” said Snøhetta partner Kjetil Thorsen of the commission, the firm’s first in the U.S. It is for the Freedom Center, dedicated to the cause of human rights, with exhibition spaces, a theater, classrooms, and presentation areas. The firm will also design the Drawing Center, a visual arts and education facility that will include gallery space and locations for public programs.

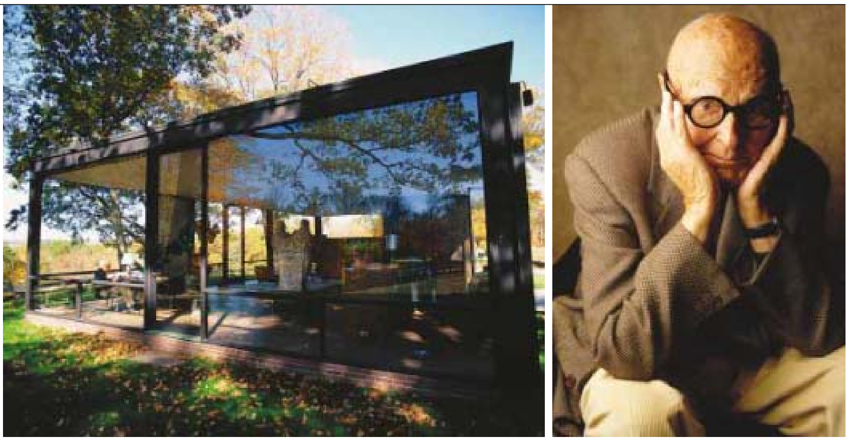
Selection of the winning teams was made by the museums and cultural institutions themselves, the LMDC, the city’s Department of Cultural Affairs, and the New York State Council on the Arts, among others. Teams short-listed for the projects comprised a who’s who of architecture, including Rafael Viñoly Architects, OMA, Studio Daniel Libeskind, Pei Cobb Freed and Partners, Polshek Partnership, Ten Arquitectos, Tod Williams Billie Tsien Architects, and Moshe Safdie and Associates.

Libeskind was a notable omission in the choice of architects, given the strength of his proposals for the “Innovative Design Study for the World Trade Center Master Plan,” which helped win him the role of site master planner but never led to a building commission at Ground Zero. He noted in a statement: “Naturally, I am disappointed not to be able to make an architectural contribution to the site, but as master planner, I am delighted that some of the world’s best architects have been selected and look forward to working with them.” *Sam Lubell*

Philip Johnson Retires at age 98

World-renowned architect Philip Johnson, FAIA, announced on October 7 that he is retiring at the age of 98, after more than 60 years in practice. Johnson, principal at Philip Johnson/Alan Ritchie Associates in New Canaan, Connecticut, is widely regarded as one of the pioneers and masters of Modernism. His prominent buildings include the highly influential Glass House, completed in 1949 in New Canaan, a clear box praised for its elegance and simplicity; the equally elegant (although much taller) Seagram Building, a late-1950s corporate tower built with Mies van der Rohe before such towers were the norm; the exquisitely complex Garden Grove Crystal Cathedral in California; and the Postmodern AT&T Building, with its controversial Chippendale top, in Manhattan.

Johnson’s commitment to the simple forms of Modernism changed over time, and later in his career he experimented with sculptural designs. A recent project being developed by the firm for a children’s museum in Guadalajara, Mexico, twists and contorts in ways that would have been unimaginable earlier.


Johnson’s Glass House in New Canaan, Connecticut (left), where he still lives.

The architect, born in Cleveland in 1906, was awarded the very first Pritzker Prize in 1979, and also won the American Institute of Architects Gold Medal in 1978. He studied under Marcel Breuer and Walter Gropius at Harvard, and was greatly influenced by Mies. He also served as director of the Department of Architecture at the Museum of Modern Art in New York City.

Johnson had been consulting for his firm from his home since last fall. The firm will keep his name and continue to operate under his partner of 10 years, Alan Ritchie, who told RECORD, “There’s no question he will be missed. We’ll miss the inspiration of knowing he’s there, and we’ll miss being able to seek his guidance. Hopefully, I can carry some of that on.” Johnson could not be reached for comment. *S.L.*

PHOTOGRAPHY: © RICHARD SCHULMAN/CORBIS (LEFT); WILLIAM COUPON/CORBIS (RIGHT)

Critical roundup: Fall is prime time for architecture

A rendering of Taniguchi's MoMA.

The most significant museum redesign in recent memory, an eccentric new parliament, a new home for jazz, a tribute to Bill Clinton above the Arkansas River: These are just a few of the significant projects opening in the next few months. Here is a preview, with some critical points of view.

MoMA, New York Japanese architect Yoshio Taniguchi's $425 million "rebuilding" of the Museum of Modern Art in Manhattan opens on November 20. The complex will house over 630,000 square feet of new facilities, including over 125,000 square feet of added gallery space. The architect creates what he describes as a "tensity" in the facade by using window glass etched with fine horizontal lines. Taniguchi wanted this tensity to unify the varied architecture of MoMA's expansions over the years. Inside, Taniguchi has created voids that extend upward through several floors to the sky; the intent is to draw light into lower levels of pedestrian space. These voids contort as they move upward, creating a canyonlike effect and significant architectural surprise. The museum also chose Taniguchi to provide more intimately scaled galleries without columns, and to incorporate intimate but airy spaces.

Scottish Parliament, Edinburgh The Queen of England opened one of the most extraordinary European buildings in years on October 9. The Scottish Parliament, in Edinburgh, is also Europe's most controversial new structure, having exceeded its very low early budget by a factor of 10 and taken years longer to build than anticipated. Its designer, Enric Miralles, of Barcelona, poured every ounce of his prodigious talent into this monument to devolution. Tragically, the architect died during construction, at age 45. While MPs will no doubt literally lose themselves in the building's dreamlike intricacies, Miralles's imagery evokes Scotland's history—its bloodiness and nobility—with Catalonian style and passion.

Enric Miralles's Scottish Parliament.

National Museum of the American Indian, Washington, D.C. Who knew there would be a structure like the recently opened $219 million National Museum of the American Indian on Washington's National Mall? The building resembles a mesa carved by the wind, its flexes and curves of honey-colored, rough-cut limestone rising from a Native American ecosystem. The original, and controversial, design showcases Indian history and culture from a Native perspective.

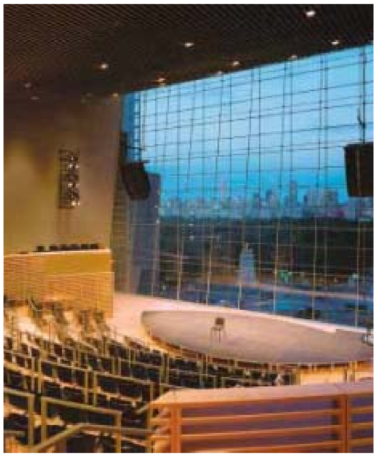
After winning the commission in 1993, architect Douglas Cardinal, a Cherokee and Choctaw, created a scheme reflecting themes voiced by native artists, elders, and chiefs from more than 150 Native communities. Cardinal was dismissed over a legal dispute in 1998, and a team of architects of native descent that included John Paul Jones, Ramona Sakiestewa, and Donna House later stepped in (Polshek Partnership oversaw the operation). But "by then the design was set," says director W. Richard West. In keeping with many Native traditions, the five-story, 250,000-square-foot building faces east toward the rising sun. An entrance with a sweeping overhang opens to a 120-foot-wide rotunda, which, soaring 120 feet to a skylight, opens to curving galleries and two circular theaters.

National Museum of the American Indian.

William J. Clinton Presidential Center.

Clinton Center, Arkansas Jutting from the south bank of the Arkansas River within a 27-acre public park, the Clinton Presidential Center is a needed antidote to the ailments of long-suffering Little Rock. Utilizing Polshek's customary sure-handed use of glass and steel, the building, which will be completed on November 18, will include 20,000 square feet of permanent and temporary exhibition space and 150,000 total square feet of new construction, including a theater, banquet hall, classrooms, and extensive archives. The design of the main building echos the old railroad bridges lining the banks of the river, and also delivers a visual splash with its strong linear focus, its floor-to-ceiling windows, and its layering of glass, steel, aluminum, and stone.

Jazz at Lincoln Center, New York Wynton Marsalis's dream to build the first performing arts facility dedicated specifically to jazz has been realized with help from Rafael Viñoly Architects. Located in New York's Time Warner Center, the complex, which opened in mid-October, contains an intricate combination of spaces for performance, recording, education, and in the case of Dizzy's Club Coca-Cola, drinking.



Jazz at Lincoln Center's Allen Room.

The facility is dominated by the 1,200-seat Rose Theater, whose seating bowl surrounds performers and is quite intimate for such a capacious space. But the highlights are the spots with the views: the Allen Room, an elegant, flexible performance space overlooking Central Park, with a 90-foot-high glass wall; and the aforementioned Dizzy's, an intimate, 140-seat jazz club that affords visiting musicians the best seat in the house—in their waiting room. *S.L., James Murdock, James S. Russell, Andrea O. Dean*

PHOTOGRAPHY: COURTESY MOMA (TOP LEFT); SCOTTISH PARLIAMENTARY CORPORATE BODY (CENTER); NATIONAL MUSEUM OF THE AMERICAN INDIAN (BOTTOM); POLSHEK PARTNERSHIP (TOP); JAZZ AT LINCOLN CENTER (RIGHT)

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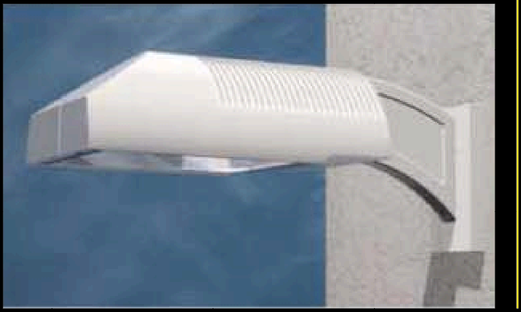

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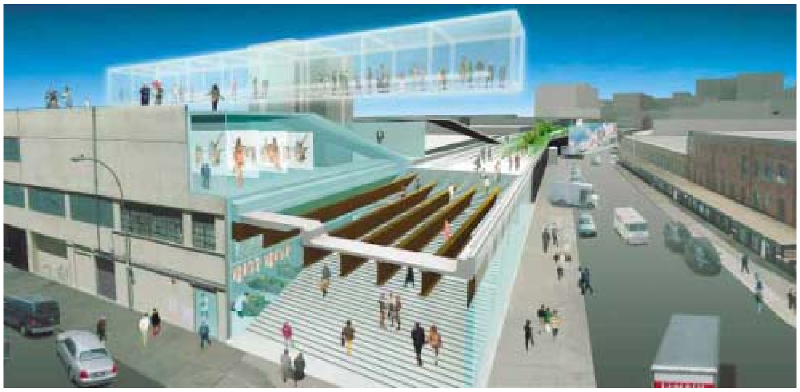
High Line announces winners to design completely new urban space

The High Line will offer varied vistas of the city from a steel structure seeded with grasses and wild flowers (above). It will include performance spaces (below).



The radical undertaking to transform Manhattan's High Line—1.5 miles of abandoned freight tracks in New York City's Meatpacking District—is now in full swing. On October 6, at a high-profile press conference staged on the High Line itself, Mayor Michael Bloomberg and the Friends of the High Line (FHL)—the nonprofiting boosters who have spearheaded the project—announced the city's commitment of more than $43 million and named the official selection of a design team to reinvent the space: designer/landscaper Field Operations, with architects Diller Scofidio + Renfro, horticulturist Piet Oudolf, artist Olafur Eliasson, lighting designer L'Observatoire, and others.

These designers beat out an A-list of competitors—including Zaha Hadid, Steven Holl, and Michael Van Valkenburgh Associates—for the opportunity to envision an unprecedented type of urban space. Though the team selection was leaked in August, contractual negotiations delayed the official announcement for nearly two months.

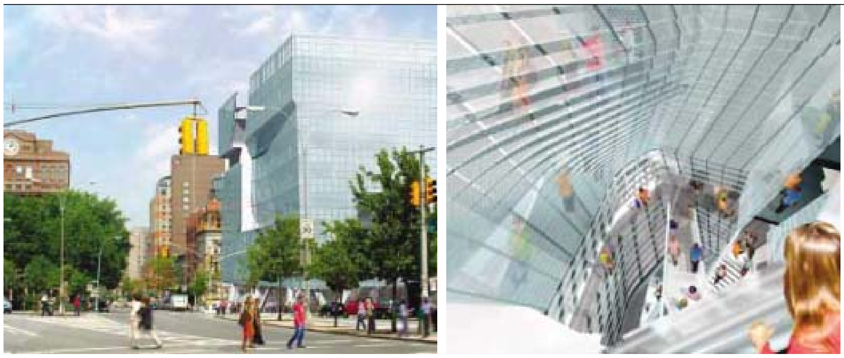
The team's winning ideas for the project, which are by no means final, consist of "retooling" the industrial location into what they call a "postindustrial instrument of leisure, life, and growth." This would be achieved by way of "Agri-tecture," a smooth and flowing juxtaposition of man-made and organic materials and surfaces. The team's High Line promenades would include diverse flora and grasslands, bridges, hills, gardens, performance spaces, enclosed rooms, a swimming pool, and lush pathways featuring varied themes and surfaces.

Pedestrians would access the High Line via a number of substantial staircases and elevators at major intersections below.

Lead designer James Corner paints a visionary but now-tangible picture of the High Line's near future as "one of the world's most spectacular urban spaces." He counts among his team's challenges the responsibility to preserve the High Line's unique poetic qualities: "its strange melancholy, its leftoverness, its scale, its magic and charm as a wild postindustrial vestige in the middle of the city."

Standing on the High Line, on a green carpet of long-growing weeds, Mayor Bloomberg touted the project's benefits: increased tax revenues and much-needed open space on Manhattan's West Side. He added: "We don't have an elevated park in this city. We should have one of everything. That's a good place to start."

Following community input sessions, the design team will lead FHL and the city in creating a master plan. The optimistic date for ground breaking is November 2005. *Ilan Kayatasky*



The new facility features fresh designs that include a glass envelope (far left) and a contorting glass atrium (left).

Mayne's design for Cooper Union doesn't fit into the box, but it fits into the East Village

The Cooper Union for the Advancement of Science and Art in New York City's East Village recently unveiled schematic designs for its new academic building. Thom Mayne of Morphosis is creating the nine-story building, which will house the school of engineering and the department of humanities and social sciences.

The building will have a glass envelope surrounded by a metal screen that will be operable by studio occupants inside. An atrium crisscrossed by glowing staircases will form the core of the building, both physically and conceptually, and will also be visible through the outer envelope. The building's elevators will stop only on every other floor, so students and faculty will be forced to take the stairs in the atrium and interact with each other. "The students and faculty become the facade," Mayne says.

An exhibition at Cooper Union that closed on October 23 illustrated some of Mayne's initial design concepts, and showed that the architect struggled with the building's preset envelope. "I was trying to warp the shape," says Mayne. Ultimately, zoning requirements kept him from twisting the upper floors of the structure or hanging projections over the sidewalk. "Since the envelope existed," Mayne said, "the design became entirely subtractive."

Mayne, who described the process of presenting his design to architecture faculty and students as being "like having your brain examined," will work on it until construction begins in 2006. When the building is complete, the school plans to demolish its existing engineering school and redevelop that site as well. *Kevin Lerner*

IMAGES: COURTESY FRIENDS OF THE HIGH LINE (TOP TWO); MORPHOSIS (BOTTOM TWO)

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Polshek chosen for Vietnam Veterans Memorial addition

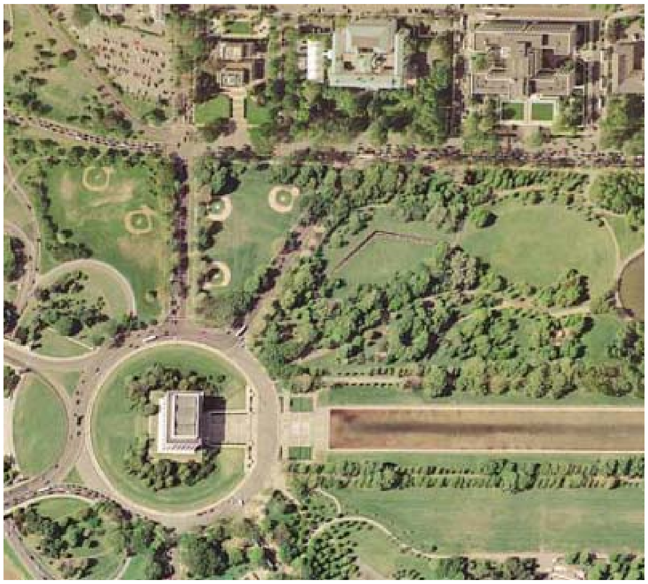
New York–based Polshek Partnership was chosen in early September to design the Vietnam Veterans Memorial Education Center on the National Mall in Washington, D.C. The roughly 25,000-square-foot building, says principal James Polshek, FAIA, will likely be underground, dug into an elevated area near Maya Lin's Minimalist Vietnam Veterans Memorial so as not to interfere visually with that monument.

"We're not interested in making a statement here," says Polshek, whose firm was given the commission by the Vietnam Veterans Memorial Fund. "I see the architect's role as a facilitator: to facilitate learning, and to facilitate the ease of people moving in and out." The structure's purpose, adds Polshek, is "to keep alive for future generations all the issues raised by the Vietnam War," and to help "bring the names on the memorial to life."

Ralph Applebaum and Associates will design the center's exhibits, which will cover about 10,000 square feet. Other members of the Polshek team will include Hargreaves Associates, for landscape design, and engineers Robert Silman Associates and Vanderwell Engineers. Other teams short-listed for the project included Ann Beha Architects, ARO, and Michael Graves & Associates.

Jan E. Scruggs, president of the Vietnam Veterans Memorial Fund, explains that Polshek "understood the enormity and the trickiness of the challenge" on a site that will be intensely scrutinized. Another determining factor, he adds, was the strength of Polshek's recent projects in Washington, including work on the just-completed National Museum of the American Indian and the upcoming Newseum.

The fund, Scruggs says, hopes to raise $40 million for construction within three years, and to complete the building in either 2008 or 2009. *S.L.*



The center will sit adjacent to the memorial, seen here from above.

PHOTOGRAPHY: COURTESY POLSHEK PARTNERSHIP

AIA Firm of the Year Lake/Flato making changes

A few months after winning the 2004 AIA Honor Award for Firm of the Year, San Antonio, Texas–based Lake/Flato Architects is reorganizing. With a total of eight partners, an unusually large number for a 40-person firm, Lake/Flato has spent the past 20 years "thinking about the work, not about the firm," according to partner David Lake, FAIA, who notes that winning the award gave the partners a chance to do a little soul-searching.

"Now we've won this award," says Lake, "so where do we go from here?"

John Grable, AIA, who has been a partner with Lake/Flato for 17 years, is starting his own firm, John Grable Architect, in San Antonio. The solo practice will focus on smaller-scale commercial and residential work. Another long-term veteran of the firm, Andrew Herdeg, AIA, will become a full partner, while Robert Trinidad, Bill Aylor, and Brian Korte will be promoted to associates. While Lake says the firm is in the process of putting its revamped mission together, he notes it will continue to focus on environmentally sensitive projects, including institutional work, buildings in the landscape, ecotourism, and single and multifamily residences. "What's happening at Lake/Flato is just a natural evolution," he says. ***Ingrid Whitehead***

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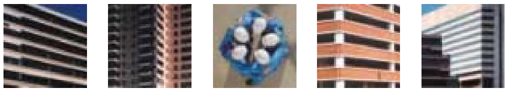

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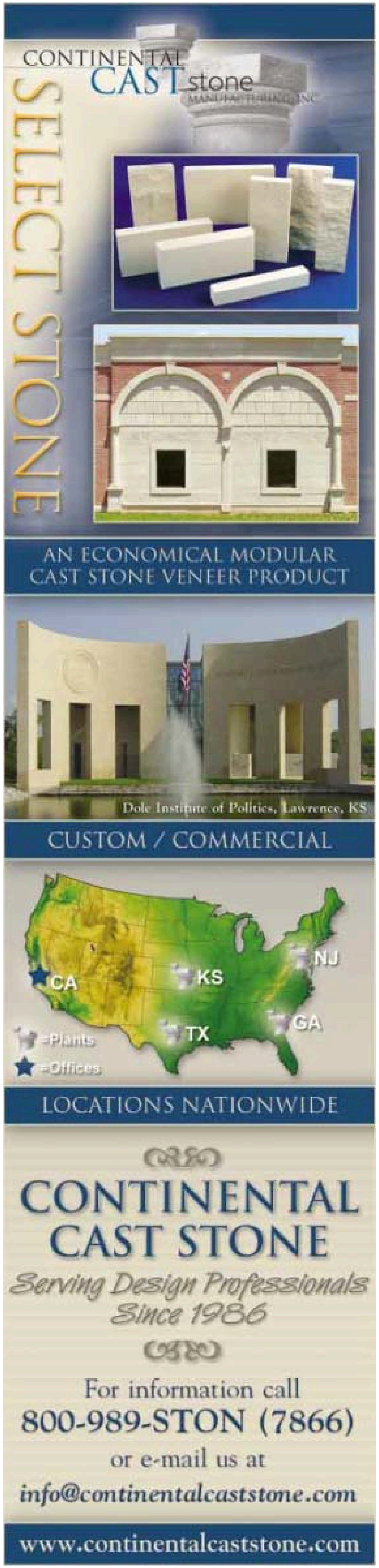
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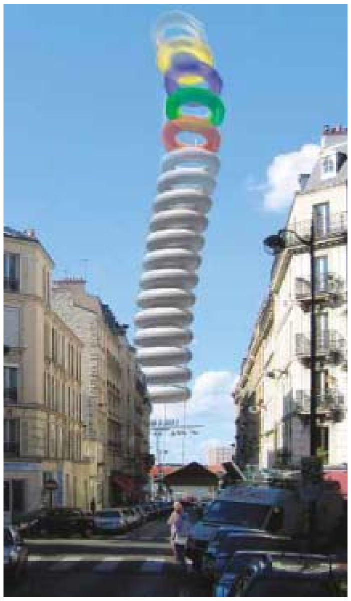
Paris selects unusual tower as possible Olympic landmark


Inflatable rings as Olympic tribute.

On September 27, Paris 2012, the promoters of Paris as the venue for the 2012 Olympics, announced the winning design in its Olympic Landmark Architecture Competition. French firm Explorations Architecture's design for an inflatable construction was selected by a 19-member jury, which included Shigeru Ban, Peter Cook, and Jean Nouvel. The winners share a top prize of $12,400.

The winning design consists of 17 inflatable rings made of synthetic material. Appearing to lift off into the air, the top five rings show off the Olympic colors. Explorations Architecture's two principal architects, Benoît Le Thierry d'Ennequin and Yves Pagés, designed what they call "a temporary and clearly visible playful monument, which fits into our work into light structures and the interaction between architecture and nature." A visitors' platform at 128 feet will afford panoramic views over Paris. The team still needs to work out the structural engineering that will allow the tower to move in the wind.

Early next year, the Olympic Landmark will stand temporarily in Les Batignolles, the site chosen for the Olympic Village should the capital be selected to host the games in 2012.

Other recent projects by the Le Thierry d'Ennequin and Pagés include a shell-like stage for the 2004 International Piano Festival in La Roque d'Antheron, and the soon-to-be-completed air-traffic control tower at Charles de Gaulle Airport. The provisional budget for the Olympic Landmark is $1.12 million.

The Pavilion de l'Arsenal, the competition organizer, however, is being criticized by 45 firms that claim that technical difficulties prevented them from e-mailing their entries in time to beat the September 6 deadline. In a written response to the architects who are contesting the rejection of their design proposals, Paris 2012 replied simply: "No technical or operating problems occurred during the reception of the proposals." *Robert Such*

Libeskind and Silverstein reach "genius fee" settlement

On October 7, World Trade Center developer Larry Silverstein and Ground Zero master planner Daniel Libeskind announced that they had reached a settlement regarding design fees for the 1,776-foot World Trade Center Freedom Tower.

Silverstein noted in a statement released to the press that he will pay Studio Daniel Libeskind $370,000 for its work on the project. Libeskind's firm conceived the building's height and off-center-spire scheme and, until December 2003, contributed to the design, which has been led by Skidmore, Owings, & Merrill (chosen by Silverstein). On July 13 of this year, Libeskind sued Silverstein for $843,750, an amount based on a percentage of the Freedom Tower's total cost. The amount, noted Libeskind's lawyer Edward Hayes, was based on a procedure rooted in industry practice.

"I am pleased that we have put these issues behind us so that we can move forward without distraction on the critical tasks ahead," said Libeskind in the statement. The architect is still in charge of the World Trade Center Master Plan for the Port Authority of New York and New Jersey and the Lower Manhattan Development Corporation. Silverstein noted similarly that he was "pleased that the mediation has produced a resolution to the dispute."

While noting that they were happy the process was over, neither Libeskind nor Silverstein would comment further on the settlement, or on whether they were happy with its result. However, Simeon Baum, president of New York–based Resolve Mediation Services, which mediated the dispute, told RECORD, "It was a resolution they were mutually satisfied with." ***S.L.***

IMAGE: COURTESY PARIS 2012

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Art show at Saarinen's terminal abruptly closed

One of the most highly anticipated and provocative artist exhibitions of the New York fall season ended abruptly after the raucous opening party got out of hand.

Eero Saarinen's TWA Terminal at New York's JFK Airport, closed since 2001, was in early October transformed into an exhibition hall for artists participating in a show called *Terminal 5*. Organized by independent curator Rachel K. Ward, the show was intended to reflect on the "transitory nature of travel, architecture, and contemporary art," according to Ward's exhibition statement. Ward, a freelance curator of contemporary art based in New York, first conceived the exhibition in the summer of 2003.

The show opened to a party on October 1 and was planned to continue through January 31, with a variety of public events and lectures. But the opening night crowd of artists and hundreds of other revelers, which was much larger than anticipated, left a mess, including vomit on the floor, broken glass, graffiti on walls, and a broken door, according to the Port Authority of New York and New Jersey, which operates the airport. The Port Authority claims liquor was being sold without a permit, but Ward says she did not witness that. She prompted people to leave and closed the party one hour early only because "the crowd had reached a great number," she says.

Installation by Aleksandra Mir in the VIP lounge (above). Artists visit the site prior to the show (top).

Ward would not confirm the damage specifics, and although she says the terminal was adequately cleaned in the following days, the Port Authority pulled the permit and did not allow the exhibition to open to the public as scheduled on October 5. At press time, Ward was in negotiations with the Port Authority to reopen the show. The terminal and exhibition had also been a planned highlight of the second annual openhousenewyork weekend, October 9 and 10.

"We responded to the size of the crowd by ending the event early, and we responded to the aftermath," Ward told RECORD. "I began the project out of dedication to the landmark," Ward says. "I was heartbroken that this building was closed to the public."

Among the nearly 20 artists in the *Terminal 5* show, Tobias Wong designed a new gift shop, Jenny Holzer developed text messages for the terminal's arrivals and departures boards, and Douglas Coupland designed imaginary machines with shapes derived from aircraft equipment. Ryoji Ikeda, a Japanese sound artist, developed a light-and-sound installation in one walkway, and Tom Sachs constructed a skateboard ramp in another. *John E. Czarnecki, Assoc. AIA*

Another ballot: Vote for your favorite Times Square building

Thought Times Square was all about chain stores and porn shops? Think again. The Times Square Alliance, a Business Improvement District that works to promote the ever-changing area, has organized "Design Times Square," which allows people to vote online for their favorite neighborhood building. Unbeknownst to many, there are quite a few gems.

Some of the 39 candidate buildings include the historic Shubert Theater, the Beaux-Arts New York Times Building, and the flamboyant new Westin Hotel by Miami's Arquitectonica.

"We want to get people to recognize that Times Square has legitimate art and architecture, not just slapped-together kitsch," says David Billotti, a spokesman for the project.

Jurors, who narrowed the list from 150 buildings, included Hugh Hardy of H3 Hardy Collaborative, and Raymond Gastil, executive director of the Van Alen Institute. Those interested in voting should visit www.timessquarenyc.org. They will be eligible to win hotel stays, restaurant visits, and theater tickets in the area. Voting ends on December 1. *S.L.*

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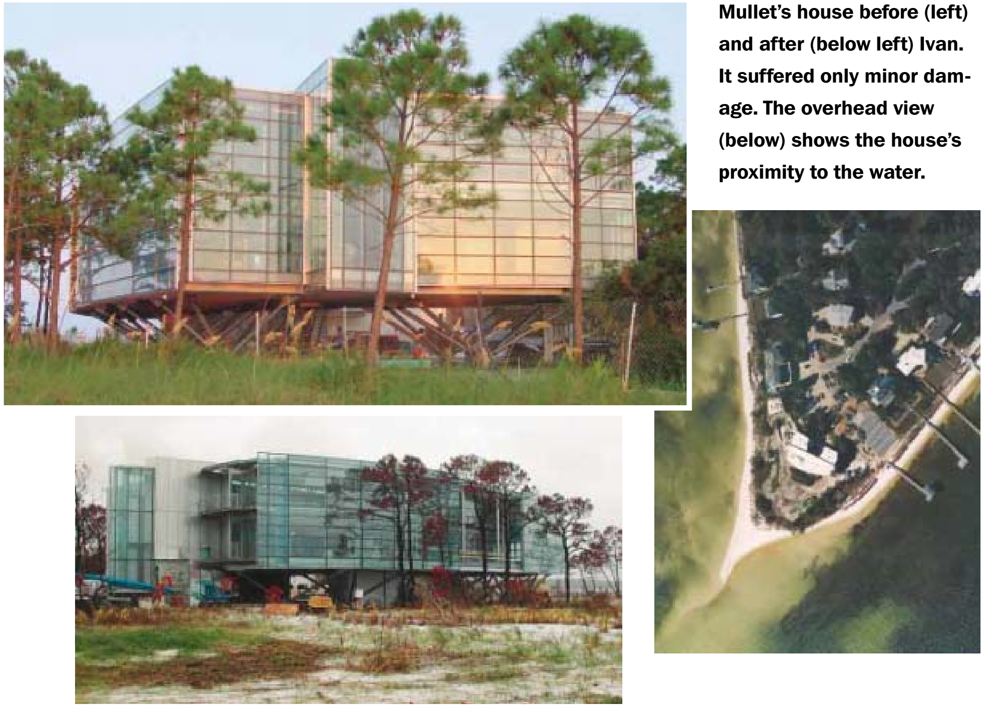

Mullet's house before (left) and after (below left) Ivan. It suffered only minor damage. The overhead view (below) shows the house's proximity to the water.

PHOTOGRAPHY: COURTESY KRUECK & SEXTON ARCHITECTS

Those in glass houses can handle stones: A Modern residence survives Ivan's havoc

Pensacola, Florida, and the adjacent town of Gulf Breeze were likely the hardest-hit locales of all in Florida's record-breaking hurricane season. In mid-September, Hurricane Ivan flattened the area with wave heights reaching over 15 feet and winds gusting well above 100 miles per hour, knocking bridges over like Legos, and bringing down hundreds of homes and schools. The U.S. Department of Transportation reports that the storm also ripped the roof off the local airport, and caused major sections of the local interstate to collapse.

But despite such heavy losses, one of the most notable structures left standing wasn't a concrete bunker, nor was it one of the hundreds of Spanish-tile Mediterranean knockoff houses that seem to be a prerequisite in the area. It was a Modern glass house in Gulf Breeze by Krueck & Sexton Architects of Chicago.

The home, which was about four weeks from being finished at the time of the storm, contains about 850 pieces of long, rectangular glass in its main body. Only two broke during the storm.

"Contemporary architecture often gets blasted for being inappropriate and whimsical," says Mark Sexton, a firm principal, who cites a 1998 article in *Wired Magazine* mocking his plans to build the house as a "futuristic folly." He notes: "The proof is in the pudding. This shows that when it's designed correctly, it can be stronger than most buildings."

The house's safety features include 11 steel "sprouts," bolted into pile caps under the house, which held it in place and deflected floating and flying debris. Meanwhile, Sexton says glass has an advantage in such situations, because it is more flexible than most building materials. The glass is not laminated, but is tempered closer to the floors. The site is on a bay in front of the Gulf of Mexico, and many of the surrounding houses are now uninhabitable. Others are missing roofs and walls.

"It's amazing that it stood," says Sexton, who is alternately proud and amazed at its performance. The bottom 12 feet of the house (essentially support structure) was designed to rip away during a hurricane, because of government regulations. But the rest is in good shape despite some dents, scratches, water damage to the floor, and appliances that don't seem to work. The owner, Willis Mullet, stayed in the house during the storm (a practice strongly discouraged by authorities) to ensure its well-being, and professes an almost eery faith in the building. "Obviously, there's nothing for certain, but I watched it go up, and I knew it was constructed very well, so I felt confident," he says. Mullet and his wife and four children have since moved into the house, a welcome break considering that in the wake of the storm, local rental homes are all booked and even motel rooms are close to impossible to find. *S.L.*

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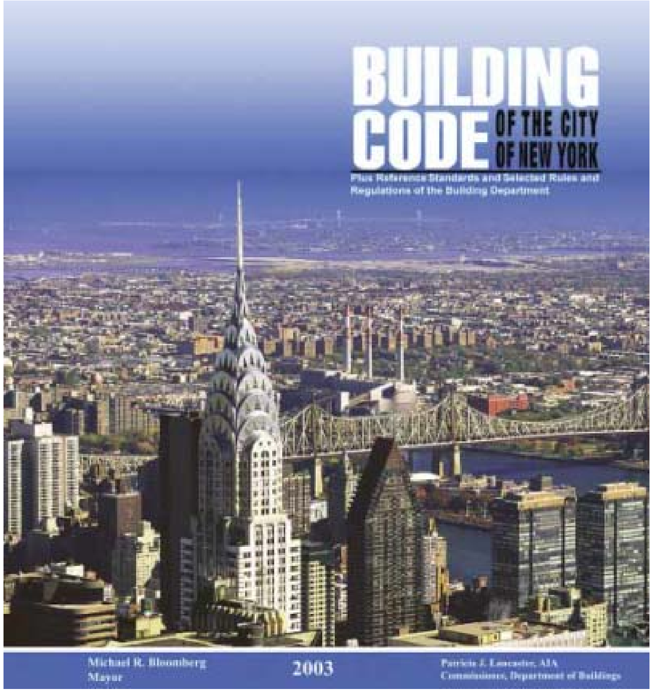
New York planning overdue overhaul of its building code

Spurred by the tragedy of 9/11, New York City is planning the first major overhaul to its building code (cover, below) in over 35 years. In October, the city introduced legislation to revise its infamously Byzantine code by January 2006 and make it compatible with the International Building Code (IBC) already in use in 44 states. The changes being developed under New York City's Model Code Program are expected to improve building safety, allow the use of new technologies, and simplify the city's building regulations.



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Currently, the city's building code text is not regularly updated (for instance, it took about 10 years before the code was last updated in 2003), and to build in New York, a developer or an architect needs to have knowledge of local building laws and amendments enacted since the previous update. In contrast, the IBC is regarded as simpler to use, and the entire IBC text is republished every three years, with revisions by the International Code Council. Meanwhile, the existing code requires getting special permits for many new construction materials and technologies already in use in other parts of the world, such as photovoltaics, while according to several building experts now reviewing the codes, the IBC is well known for its embrace of modern technologies.

City officials emphasize that substantial modifications will be made to the IBC to address New York's unique and highly dense built environment. Another consideration is how to balance the need for new safety features with potential increases in development costs.

Still, some safety aspects of the IBC are extremely controversial, such as what some say is too much emphasis on sprinkler systems at the expense of fire-resistant construction. "An unfortunate problem with the IBC is that there has been a wholesale shift downward in terms of hours of fire-resistance," says Glenn Corbett, assistant professor of fire science at John Jay College and a member of the Model Code's fire-safety committee, who supports adopting the IBC but with much stricter fire-resistant-construction requirements. Says Corbett, "One of the biggest lessons to come out of 9/11 is that structural fire-resistant construction plays a key role."

Meanwhile, many in the real estate industry are worried that incorporating safety requirements from the city's code into a modified version of the IBC will increase development costs. "If you end up taking the most stringent provisions of the city's code, and then take the IBC wherever it is more stringent, then you are by definition coming up with a more costly code," says Marolyn Davenport, senior vice president of the Real Estate Board of New York and member of the Model Code's managing committee, which is overseeing the proposed code changes.

But others involved with developing the new regulations say that it is possible to contain the costs of increasing security by making strategic decisions about which safety provisions to choose from the two codes. Stanley Dawe, chair of the Model Code's fire protection committee and former New York City chief of fire protection, acknowledges that some fire measures may cost more, but adds, "There will be trade-offs that will balance the costs out." They better, notes Jennifer Givner, press secretary for the New York City Department of Buildings. "It has to cost the same, if not less; if it costs more, we are going to have to go back to the drawing board." *Alex Ulam*

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Officials discuss new uses for Boston churches

Boston's Blessed Sacrament: a future condo?

Citing monetary issues, demographic shifts, and maintenance costs, the Roman Catholic Archdiocese of Boston is in the process of closing more than 80 of its 357 parishes. Amid the sometimes litigious and rancorous shutdowns, preservationists, community groups, and planning officials are scrambling to advance appropriate uses for the parish holdings. The archdiocese encompasses 144 towns in eastern Massachusetts. In addition to church buildings, many parishes also own rectories, convents, schools, and parish halls.

At this fall's 2004 Statewide Historic Preservation Conference in Salem, Massachusetts, the Boston Preservation Alliance and Preservation Massachusetts staged a charrette on the reuse and conservation of archdiocese buildings. Preservationists, planners, architects, and others hashed out a range of reuse options for parishes. The organizers will circulate a summary of the charrette as a resource for groups looking to preserve religious properties.

The designers considered as a case study Blessed Sacrament in Boston's Jamaica Plain neighborhood, which closed on August 31. The massive Renaissance Revival church, which has an octagonal tower, was completed in 1917. According to the panel, selling it to another religious group for use as a house of worship would be considered the "highest and best use," maintaining the building's function and requiring the least conversion. But the most likely use, it appears, would be for residential condominiums. Stained-glass windows, reliquaries, and other objects would be removed if the church were to be deconsecrated. This would carve up the interior but generally preserve the envelope and significant architectural details.

Saving all existing parish structures would be difficult, say charette participants, but the most significant could be preserved if others were sacrificed for high-return development. Officials and concerned citizens stressed the need for community input and a coordinated approach. If there are willing buyers, reuse of churches and their auxiliary buildings as places of worship, housing, even for commercial mixed-use and schools, is the best preservation scenario and can often fetch better than fair market prices. *Ted Bowen*

Beijing Architecture Biennial reveals ups and downs

The first annual Beijing Architecture Biennial was held from September 20 to October 2 at various venues in the Chinese capital. The event focused on current architecture in China, casting a positive lens on the many innovative projects under way in the country.

The centerpiece was a large-scale exhibition featuring works by architects from China and overseas at the National Art Museum in downtown Beijing. Architects currently working in China were invited to submit renderings, models, and explanations of their China projects. Participants included Rem Koolhaas/OMA, Steven Holl, Herzog & de Meuron, Paul Andreu, Foster and Partners, and Zaha Hadid. In addition, the work of up-and-coming Chinese architects, such as Bu Zhengwei and Chai Peiyi, was featured. Exhibitions of student work and young Chinese architects were also held at Tsinghua University.

A series of eight sparsely attended panel discussions were also held; topics mostly dealt with the state of contemporary architecture in China, the growing interaction between local firms and designers overseas, and China's almost obsessive willingness to award high-profile projects of national importance to foreign architects. Tensions have risen recently about the apparent lack of cultural deference in many of the country's signature architectural projects, which are usually designed overseas. The biennial, which was plagued by organizational problems, such as ticket-sale mishaps, a lack of attendance, and arguments with participating architects, was sponsored by China's Ministries of Culture and Construction. The ministries plan to hold future biennials. ***Daniel Elsea***

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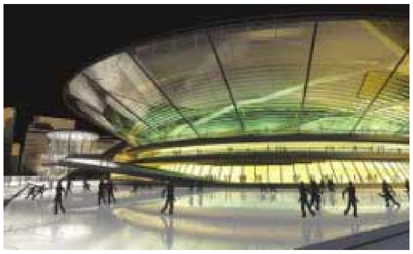
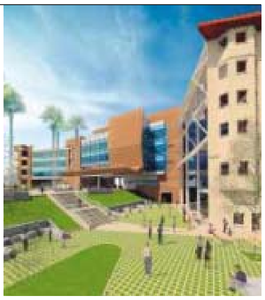
Team announced to design new Kansas City arena



In a flurry of activity, a nine-member selection committee announced on September 30 that the alliance called the Downtown Arena Design Team (DADT), comprising HOK Sport, Ellerbe Becket, 360 Architects, and Rafael Architects, would be the designers of a new Kansas City sports arena. The local team was selected over a group featuring Frank Gehry and Crawford Architects.

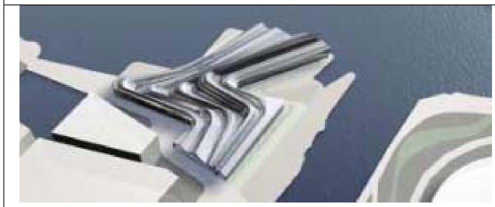
Although schematics have not been approved, a rapid project timeline envisioning a March 2007 completion suggests that whatever is built will likely be close to the team's conceptual scheme. According to that outline, the building will address its context on all four sides and rise like a glass bowl over a canted glazed base revealing an internal communication system of cantilevered ramps as well as the seating structure. A LED readout around the cornice will project advertising and images of activities going on inside. At ground level, a reflecting pool will become an ice rink in the winter. The $250 million, 750,000-square-foot arena will seat up to 19,000. Anschutz Entertainment Group (AEG) of Los Angeles, which will operate the arena, has reportedly promised to seek an NHL or NBA franchise as principal tenant. *Robert Benson*

Beloved hotel to be replaced with school?



A plan to raze much of Los Angeles's historic Ambassador Hotel for new schools is ruffling the feathers of preservation advocates. In mid-October, the Los Angeles Unified School District Board approved a $318.2 million plan to convert the 18-acre site into a 4,200-student school complex to serve a densely populated neighborhood.

Most controversial is the proposed demolition of the six-story, 83-year-old main building, designed by Myron Hunt. A conceptual design by Pasadena-based Gonzalez Goodale Architects recreates the facade as part of a new school building (rendering, right). Many community groups back demolition, arguing against the use of bond funds for preservation. But to the Los Angeles Conservancy, demolition would destroy "one of the great landmarks of Hollywood," says Ken Bernstein, the group's director of preservation issues, who adds that historic local hotels have been converted into schools before. But Glenn Gritzner, an assistant to superintendent Roy Romer, contends that conversion would be prohibitively expensive. A 2006 construction start is planned, and the complex is slated for completion in 2009. At press time, the conservancy had not decided on a court challenge. *Paul Rosta*

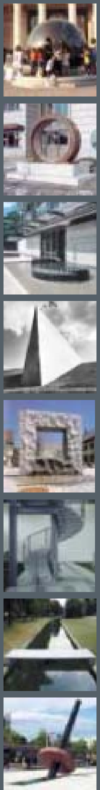


Glasgow hopes Hadid can help remake its waterfront

Zaha Hadid has scooped her second architectural project in Scotland, Glasgow's $90 million Riverside Museum of Transport on the banks of the River Clyde. She beat out more than 40 rivals.

The new museum is intended to stand as a monument to 21st-century Glasgow and will be sited at the point where the River Clyde meets the River Kelvin, adjacent to a major urban redevelopment, the Glasgow Harbor site. In 2002, Glasgow City Council unveiled a City Plan for regenerating and transforming the area, called Clydeside, from a postindustrial wasteland into a vibrant corridor. Next door, the Harbor scheme, master planned by Kohn Pedersen Fox, is a $900 million waterfront development of 650 new homes, offices, shops, and leisure facilities on 120 acres of former dockland. Hadid called her design "a postcard view" at the moment, but the swerving shape of its futuristic model is clearly all about movement. She plans to go on-site in 2007, with the intention of opening the new museum by 2009. *Lucy Bullivant*

PHOTOGRAPHY: COURTESY ELLERBE BECKET (TOP); GONZALEZ GOODALE ARCHITECTS/LOS ANGELES UNIFIED SCHOOL DISTRICT (MIDDLE); ZAHA HADID ARCHITECTS (BOTTOM)



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News Briefs

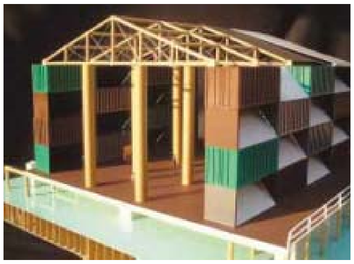
A vote for better design Just in time for the election, architects, artists, and designers have reformulated the Votomatic voting machine, the infamous, 1960s-era apparatus that Florida voters used four years ago. Their work is on display through November 15 in *The Voting Booth Project*, an exhibition at the Parsons School of Design in New York. Paul Goldberger, dean of Parsons's architecture school, was inspired to stage the show earlier this year when he was given roughly 50 vintage booths—still filled with chads. "By actually having the artifact from that election, people were able to comment on the design issues," says Chee Pearlman, who curated the show. "You had something that was flimsy, outmoded, and confusing to use. People saw in that fragility the fragility of the democratic process." David Rockwell's entry, entitled *Playing With Fire*, is a voting machine constructed entirely out of matches. "A single spark and this would go up in smoke," Pearlman observes. *James Murdock*

Robert A.M. Stern's booth, *Hindsight 20/20*.

Otto wins RIBA Gold Medal Frei Otto, 79, the German architect and engineer, has won the latest RIBA Gold Medal, it was announced in early October. Otto's pioneering tensile structures, grid shells, and stretched membranes have been widely influential, and he is responsible for the revival of the tent as a feature of modern architecture. His most famous projects include the West German Pavilion at the Montreal Exposition in 1967 and the roofs over several sports structures at the 1972 Olympic Park in Munich. *L.B.*

Meier in Vegas Architect Richard Meier, FAIA, is designing a new, $1 billion, 1,500-unit hotel-condo complex at the Hard Rock Hotel and Casino in Las Vegas. Consisting of four buildings, totaling 1.5 million square feet, the project calls for studio apartments, one- and two-bedroom units, and 6,000-square-foot penthouses. Plans also include poolside bungalows and villas, plus upscale restaurants, nightclubs, retail shops, and a health club and spa. *T.I.*

A traveling museum In late September, Japanese architect Shigeru Ban shared plans for a temporary museum on a historic West Side pier in New York City. The Nomadic Museum, opening in spring 2005, is designed to be easily transportable. It will display the photographic works of Gregory Colbert, whose show, *Ashes and Snow*, features large-scale photography and film projections on the subject of nature and man. The first museum of its kind, the Nomadic Museum's perimeter will be composed of 148 steel cargo containers constructed in a checkerboard pattern. Waterproof paper tubes will create roof and trusses. The museum's content will be able to be broken down and shipped in 37 cargo containers, while the remaining containers will be borrowed at the museum's future locations. *Randi Greenberg*


A model of Ban's traveling museum.

PHOTOGRAPHY: COURTESY THE VOTING BOOTH PROJECT (TOP); SHIGERU BAN ARCHITECTS (BOTTOM)

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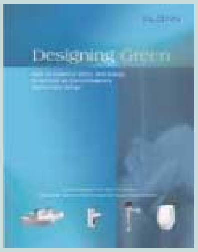

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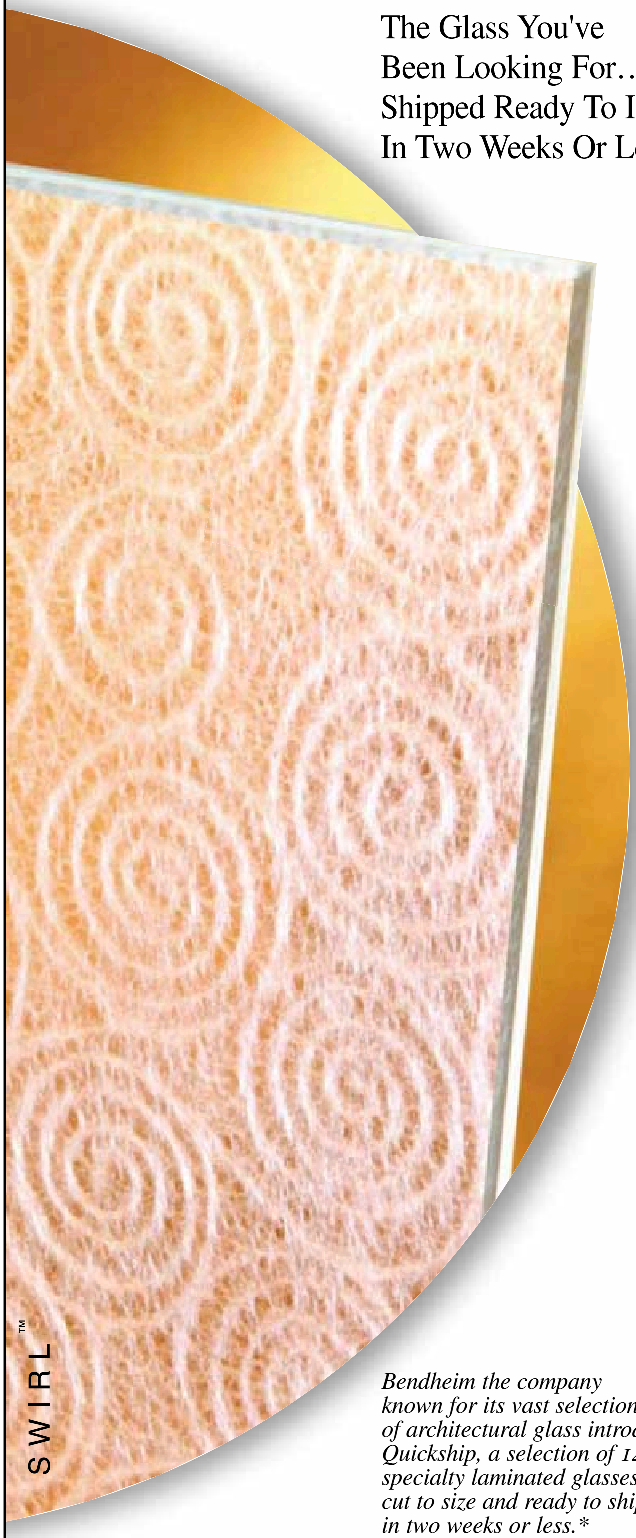

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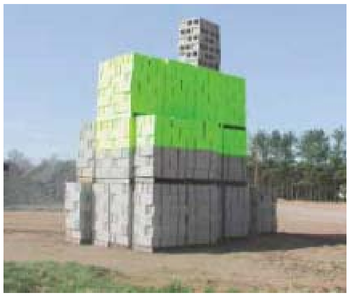
News Briefs

Wal-Mart becomes art New York–based conceptual artist Russell Maltz has for years been altering built forms with shape and color. In February, he began bringing the technique to the Concrete Masonry Units (CMU) installed at chain stores like Home Depot and Wal-Mart, painting them Day-Glo yellow to attract attention "in an environment that is always trying to grab you." He started placing the works outside of stores this spring in Connecticut, New Jersey, New York, Vermont, and Ohio, and most have since become part of new buildings. "The buildings are transformed. Even if you can't see it, it's there," says Maltz, describing his now-permanent art. *S.L.*



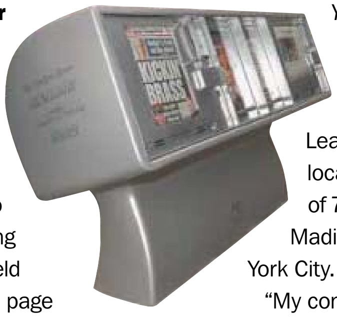
Big-box art from Russell Maltz.

Committee recommends removing Soldier Field from landmarks list A federal advisory committee of the National Park System has voted to recommend removing Chicago's Soldier Field [RECORD, May 2004, page 114] from the list of National Historic Landmarks. On September 23, the committee unanimously agreed that the $660 million renovation to the football stadium destroyed its historic character. The recommendation now goes to U.S. Interior Secretary Gayle Norton, who is likely to make a final decision by the end of the year. *J.E.C.*

Peter Cook joins HOK Archigram founder Peter Cook, outgoing head of architecture at the Bartlett School of Architecture in London, has a new commercial future before him. Following the success of the Kunsthaus in Graz [RECORD, January 2004, page 92], the riverside building he designed with Colin Fournier, new projects beckon, most notably an appointment as design principal of HOK International in London. Cook, who received many offers, says that working on the Kunsthaus has whetted his appetite to concentrate on being a practicing architect, and he has given a full endorsement of HOK's embrace of "the interdependence between research and design." Cook will share his time equally between HOK International and HOK Sport. *L.B.*

Rashid designs news rack for the new millennium Just when you thought architects had run out of things to design, Karim Rashid has unveiled a prototype for a news rack. The 7-foot-wide, 3.5-foot-tall, 24-inch-deep work is made of curving, light-silver-colored fiberglass that bends audaciously backward. It holds *The New York Times*, the *New York Post*, and publications from the Gotham Writers Workshop and the Learning Annex, and is located on the corner of 77th Street and Madison Avenue in New York City.

The news rack of the future?



"My concept was to have it have it function as a piece of street furniture—something functional, yet beautiful," says Rashid.

The city has allocated $475,000 for the project, which will eventually include more than 60 Rashid-designed boxes placed along Madison Avenue between 60th and 86th Streets. *S.L.*

PHOTOGRAPHY: COURTESY RUSSELL MALTZ (TOP); MADISON AVE. BUSINESS IMPROVEMENT DISTRICT (BOTTOM)

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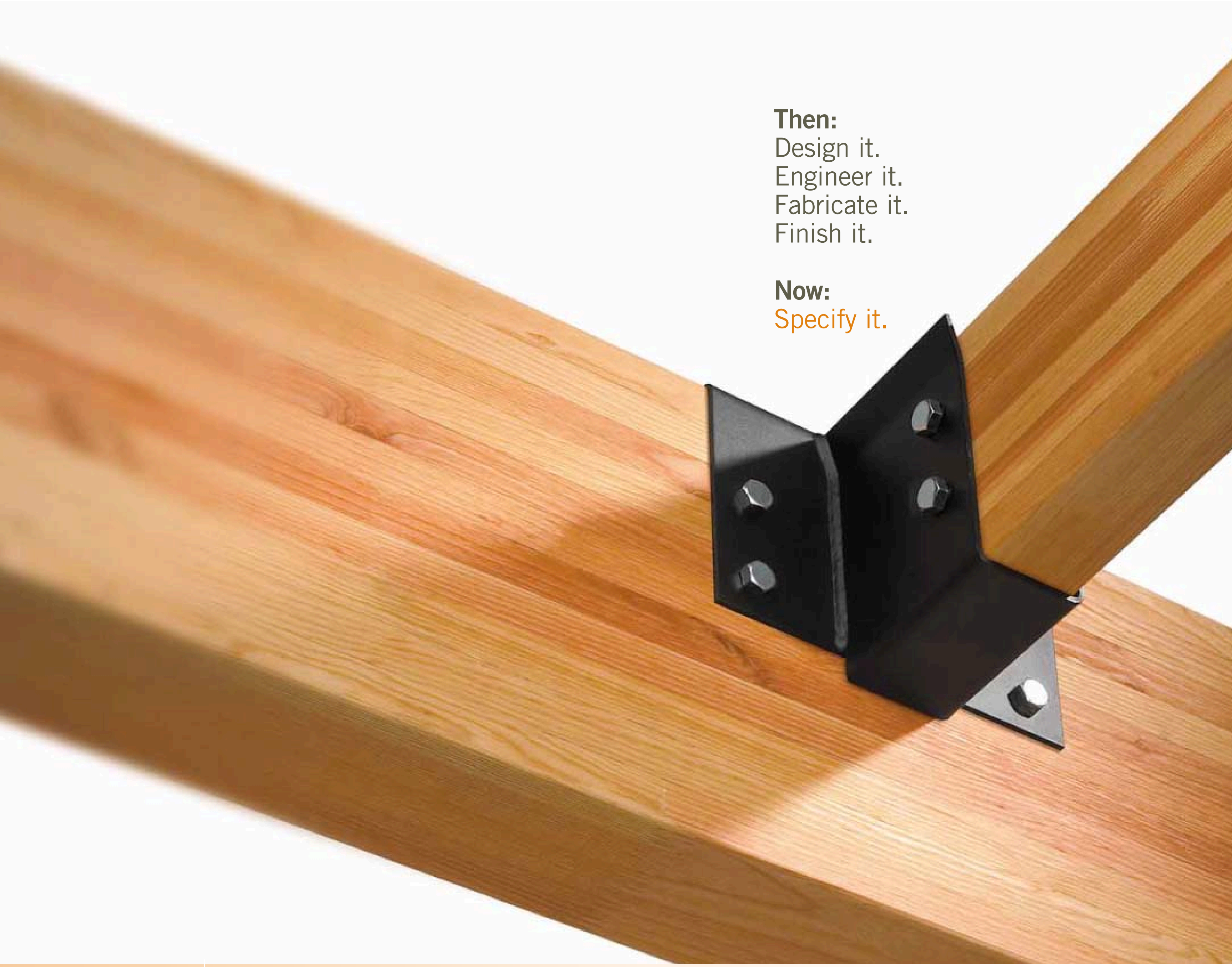
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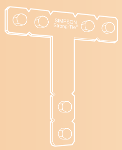

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Dates & Events

New & Upcoming Exhibitions

Suspending Beauty: The Verrazano-Narrows Bridge Turns Forty
New York City
November 19, 2004–March 20, 2005
In celebration of the 40th anniversary of the opening of the bridge linking Brooklyn and Staten Island, this exhibition will demonstrate the story of the building of one of the last colossal public works projects in New York City. With scale models of the bridge, original construction drawings by Lili Rethi, photographs, bridge artifacts, and memorabilia from bridge designer Othmar Amman. At the Brooklyn Historical Museum. Call 718/222-4111 or visit www.brooklynhistory.org.

The Reopening of Manhattan's Museum of Modern Art
New York City
November 20, 2004
The reinstallation of its collection in the newly renovated and expanded building designed by Yoshio Taniguchi will include the MoMA Department of Architecture and Design's overview of its collection of design objects, architectural models, and graphic design from the mid-19th century until today, as well as an installation of architectural drawings by the most eminent architects of the 20th century. At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

Projecting Reclamation in Design
Cambridge, Mass.
December 1, 2004–January 17, 2005
In the United States alone, new mining will create more than 100,000 square miles of land needing reclamation by the year 2230 as well as 500,000 abandoned mines requiring reclamation. This exhibition focuses on current and future directions for landscape architects and designers to consider in engaging in reclamation. At the Harvard Design School. Call 617/495-5453 or visit www.gsd.harvard.edu.

Light Structures: The Work of Jorg Schlaich and Rudolf Bergermann
New Haven
November 15, 2004–February 4, 2005
Organized by Frankfurt's Deutsches Architektur Museum, this exhibition focuses on the work of the structural engineering firm Schlaich Bergermann and Partner. At the Yale School of Architecture. Call 203/432-2296 or visit www.architecture.yale.edu.

ARCHLAB: New Experiments in Architecture, Art and the City
Tokyo
December 21, 2004–March 13, 2005
The exhibition explores revolutionary designs by international architects from the 1950s to the present, uncovering the origins of radical and visionary approaches to building design and urban planning that have changed the way we look at the city. At the Mori Art Museum. Call 813/5777-8600 or visit www.mori.art.museum.

Origami as Architecture
Washington, D.C.
Opens November 6, 2004
This exhibition showcases traditional origami, the art of paper folding, and new forms depicting architecture inspired by this art. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Chicago Architecture: Ten Visions
Chicago
November 26, 2004–April 3, 2005
This exhibition illustrates a range of ideas concerning the future of Chicago and the built environment from 10 influential, locally based architects. In the Daniel F. and Ada L. Rice Building at the Art Institute of Chicago. For further information, call 312/443-3600 or visit www.artic.edu/aic.

Nine Museums by Yoshio Taniguchi
New York City
November 20, 2004–January 31, 2005
This opening exhibition will present the new Museum of Modern Art in the context of the other extraordinary art museums that Taniguchi has designed over the past 25 years and will address four integral themes in the architect's work: materials, proportion, natural light, and movement. At the Museum of Modern Art in Manhattan. Call 212/708-9400 or visit www.moma.org.

Huyghe + Corbusier: Harvard Project
Cambridge, Mass.
November 18, 2004–April 17, 2005
Pierre Huyghe celebrates Harvard's Carpenter Center in conjunction with the 40th anniversary of Le Corbusier's only north American building. The multimedia project will explore Le Corbusier's vision for the Carpenter Center, including multiple components that respond to the design history and its relationship to Harvard. At the Carpenter Center. Call 617/495-9400 or visit www.artmuseums.harvard.edu.

Experiments with Truth
Philadelphia
December 4, 2004–March 12, 2005
The exhibition is an international survey of contemporary filmmaking intended to reassess the influence of cinema and the use of documentary within contemporary visual art practices. Architects Elizabeth Diller and Ricardo Scofidio, as well as Paul Kuranko, media arts specialist at the Guggenheim Museum, will assist in designing experimental spaces between gallery and theater that balance the conceptual and practical demands of each artist's installation. At the Fabric Workshop and Museum. Call 215/568-1111 or visit www.fabricworkshopandmuseum.org.

Ongoing Exhibitions

Alejandro Aravena: X
Cambridge, Mass.
Through November 17, 2004
As the first comprehensive display of the architect's work to be displayed in the United States, this exhibition features 10 projects selected by the architect, as well as entries for the "Elemental" competition for social housing in Chile. At the Harvard Design School. Call 617/495-5453 or visit www.gsd.harvard.edu.

Glamour: Fashion, Industrial Design, Architecture
San Francisco
Through January 17, 2005
The concept of glamour is based on a notion of excess and has been glorified in the discipline of fashion. Conversely, glamour has been marginalized in industrial design and even reviled in architecture, where the pared-down aesthetics of Modernism and Minimalism have prevailed since the middle of the 20th century. On view are haute couture by Dior and Versace, autos from Jaguar and Bentley, architectural works by Philip Johnson and Herzog and de Meuron. At the San Francisco Museum of Modern Art. Call 415/357-4000 or visit www.sfmoma.org.

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Dates & Events

RoadTrip: Racine Art Museum: Building an Institution
Chicago
Through March 7, 2005
Through a series of specially commissioned portraits by Scottish photographer Graham MacIndoe, this exhibition explores the many individuals and groups who made the construction of the new museum possible. In the John Buck Company Lecture Hall Gallery at ArchCenter. Call 312/922-3432 or visit www.architecture.org.

Bridging the Drive: Pedestrian Bridge Designs for Lake Shore Drive
Chicago
Through January 9, 2005
Some of the world's best known architects and engineers have submitted designs for the pedestrian bridges across Lake Shore Drive. All the entries will be on view. At the ArchCenter. Call 312/922-3432 or visit www.architecture.org.

Lina Bo Bardi: The Freedom of Architecture
Venice, Italy
Through November 15, 2004
With over 200 original drawings, models, and design objects, the exhibition attempts to reread the architectural work of Lina Bo Bardi, including the art and culture museums of San Paolo, Bahia, Ibirapuera, and numerous residences. It will explore her inexhaustible creativity as stage and costume designer, furniture and jewelry designer, as well as her graphic design work and projects of urban planning. At Galleria Internazionale d'Arte Moderna di Ca' Pesaro. Call 041/257-1993 or visit www.iuav.it.

Bob the Roman: Heroic Antiquity and the Architecture of Robert Adam
New York City
Through December 4, 2004
Originated by the Sir John Sloane's Museum in London, this exhibition includes 83 18th-century architectural drawings and focuses on the three years that Robert Adam spent in Rome, when he engaged both Charles-Louis Clerisseau and Giovanni Battista Piranesi to teach him to draw. In the Gallery at the New York School of Interior Design. Call 212/472-1500 or visit www.nysid.edu.

Paul Rudolph: The Florida Houses and the Cannon Chapel
Atlanta
Through December 31, 2004
Paul Rudolph, a pioneer of 20th-century architecture, began his career designing intimate beach houses on the west coast of Florida. This exhibition celebrates the innovation and drive that propelled Rudolph to international renown in the 1960s. At the Museum of Design Atlanta. Call 404/688-2467 or visit www.museumofdesign.org.

Mid-Century Modern Revisited: Design 1943–1953
Houston
Through November 28, 2004
This exhibition offers viewers a unique and wide-ranging introduction to 10 of the most creative and influential years in the history of contemporary design. At Brazos Projects. For additional information, visit www.brazosprojects.org .

Sergio Rodrigues: Sultan in the Studio
New York City
Through November 17, 2004
Rodrigues is revered in his native Brazil as the country's first truly Modern designer and author of an authentically "Brazilian" style of furniture and objects. The first major American retrospective of his work remains on view for several weeks at R 20th Century. For information, call 212/343-7979 or visit www.r20thcentury.com.

Troubled Search: The Work of Max Abramovitz
New York City
Through December 11, 2004
Troubled Search is the first in-depth survey of the career of Max Abramovitz, who was half of the noted architectural firm Harrison & Abramovitz. He is best known for his work on major postwar urban projects such as the United Nations headquarters and Avery Fisher Hall at Lincoln Center, both in New York City. At the Miriam and Ira D. Wallach Art Gallery. Call 212/854-2877 for more information.

Aerospace Design: The Art of Engineering from NASA's Aeronautical Research
Washington, D.C.
Through December 5, 2004
This exhibition features more than 65 artifacts from NASA's collection, including wind tunnel models and designs for conceptual airplanes. At the Octagon. Call 202/638-3221 or visit www.theoctagon.org.

Lebbeus Woods: Experimental Architecture
Pittsburgh
Through January 16, 2005
One of the most innovative experimental architects working today, Lebbeus Woods combines an extraordinary mastery of drawing with a penetrating analysis of architectural and urban form, as well as social and political conditions, that is nourished by his wide knowledge of fields ranging from philosophy to cybernetics. At the Heinz Architectural Center. Call 412/622-3131 or visit www.cmoa.org.

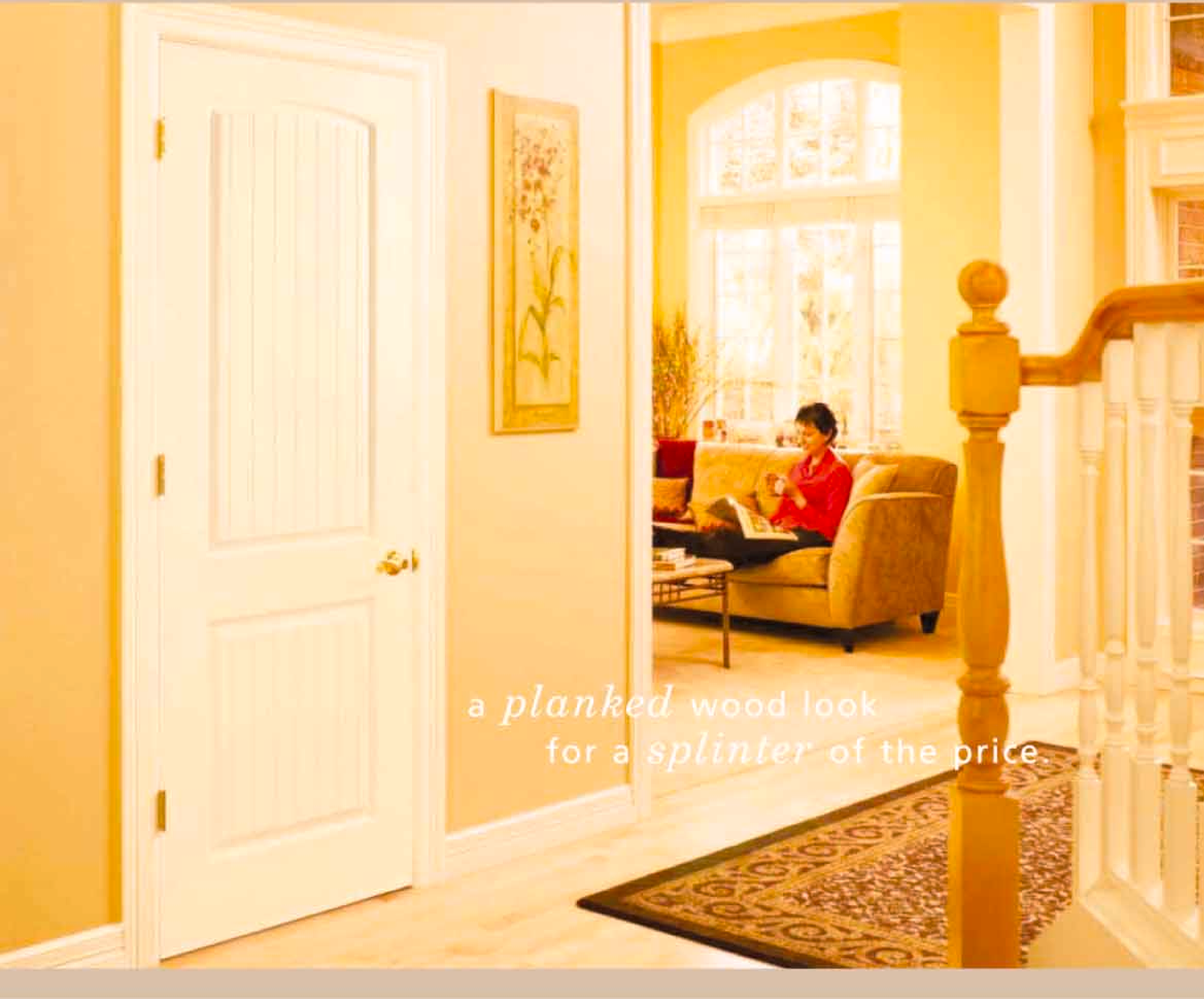
Lectures, Conferences, and Symposia

Jean-Louis Cohen
New York City
November 22, 2004
A lecture by Jean-Louis Cohen, Sheldon H. Solow Professor in the History of Architecture, Institute of Fine Arts, N.Y.U., on the topic of "Infinitely Fresh, Infinitely New: Echoes of Richard Neutra and Los Angeles Architecture in Europe." Part of Columbia University's Architecture, Planning, and Preservation fall lecture series. In Wood Auditorium, Avery Hall. Visit www.arch.columbia.edu.

Tall: The American Skyscraper and Louis Sullivan
New York City
November 26, 2004
A film directed by Manfred Kirchheimer takes a poetic and wise new look at an important chapter in architectural history: the development of the American skyscraper between the late 1860s and early 1920s and the rivalry between Louis Sullivan and Daniel Burnham, two men who changed the skyline. At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

Yoshio Taniguchi and MoMA's Architectural Legacy
New York City
November 30, 2004
An informal slide lecture with Steven Zucker on the architect of the newly renovated Museum of Modern Art in Manhattan. At the Arts Consortium Auditorium. For information, call 212/708-9400 or visit www.moma.org.

2004 Architectural Record Innovation Conference
New York City
November 15–16, 2004
Because tall buildings present so many architectural and engineering challenges and are often well financed, they frequently inspire research and development and are proving grounds for new structural, mechanical, electrical, and safety breakthroughs. This conference will present case studies of the innovative aspects of three tall buildings in various stages of completion. The case studies will include presentations by individual members of the design team: The architect, and structural and environmental engineers. At the Millennium Broadway Hotel. Call 212/904-4634 or visit www.construction.com.



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Dialogues on the Relationship Between Design and Art
New York City
November 6, 2004
The symposium will explore the definitions of art and design at a time when traditional distinctions between the two are becoming increasingly ambiguous. Distinguished panelists will cover topics including “Design and Art from a Historical Perspective”; “Thesis, Antithesis, Synthesis: A Conversation”; “The Continuum between Art and Design”; and “The Designer’s Perspectives.” At the Cooper Union. Call 212/849-8380 or visit www.cooperhewitt.org.

Robert Hillier: When Bigger Gets Better: A Cottage Industry Goes Corporate
New York City
November 11, 2004
To Hillier, the building of the fifth-largest architectural firm in the country is a result of bringing together design excellence and good business. His 300-person firm’s work can be found in 42 states and 30 foreign countries. Hillier will lecture at the City College of the City University of New York. Call 212/650-7118 or 212/650-7312 or visit www.ccny.cuny.edu.

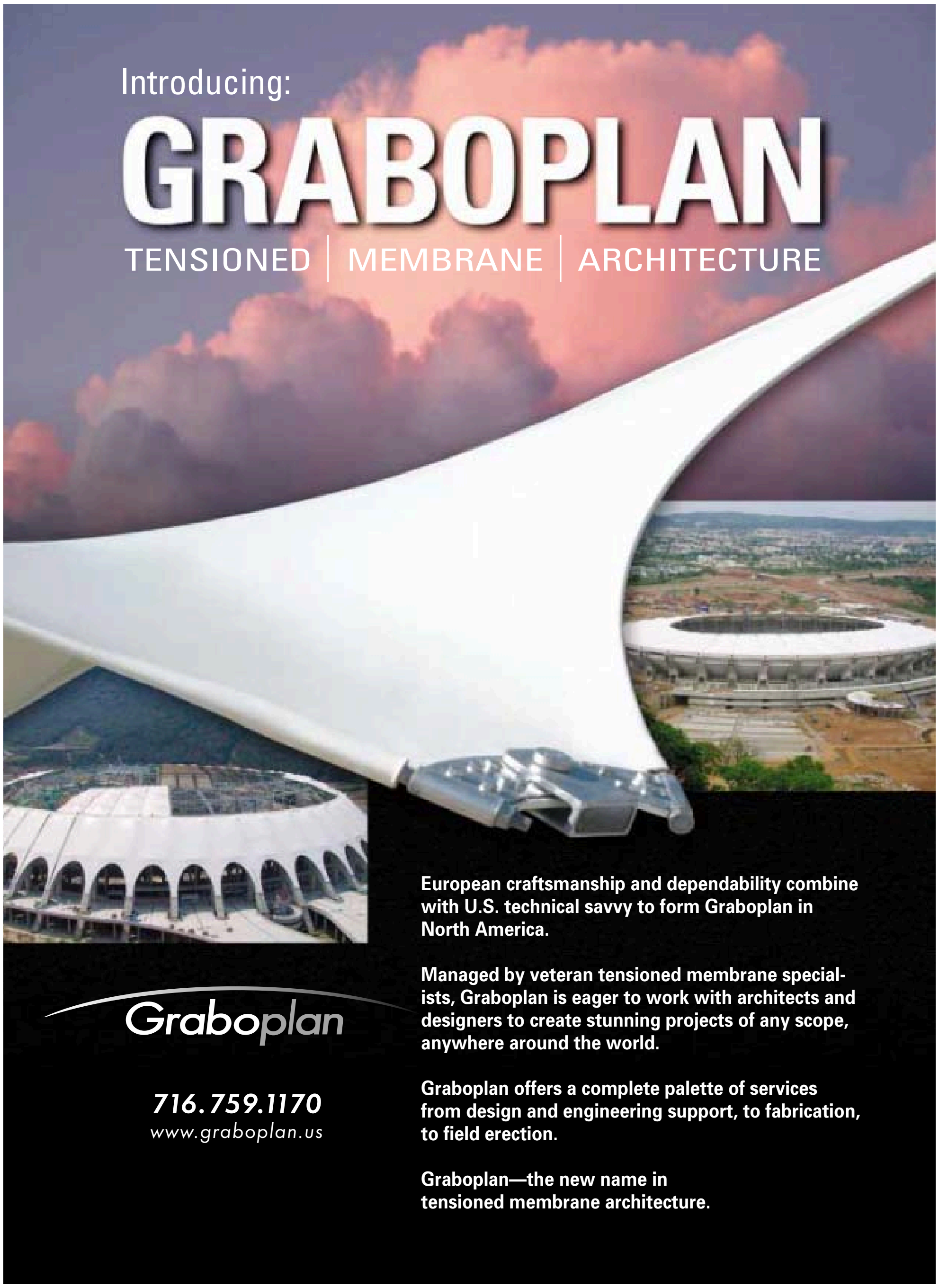
Tom Hahn
Scottsdale, Ariz.
November 30, 2004
Tom Hahn of Sol Source Architecture + Building discusses “Architecture of the Four E’s—Environment, Economy, Experience and Ethics,” in relation to the work of Samuel Mockbee and the Rural Studio and local and international examples of environmentally sensitive, affordable architecture. At Scottsdale Museum of Contemporary Art. Call 480/994-2787 or visit www.smoca.org.

Anthony Floyd
Scottsdale, Ariz.
December 9, 2004
Anthony Floyd, sustainable building manager for the City of Scottsdale, discusses efforts to promote “green” design and environmentally responsible building in the Sonoran Desert. At the Scottsdale Museum of Contemporary Art. Call 480/874-4630 or visit www.smoca.org.

Jeffrey Kipnis
Charlotte
November 22, 2004
A lecture followed by a screening of the film *A Constructive Madness* (“in which Frank Gehry and Peter Lewis spend a fortune and a decade, end up with nothing, and change the world”). The film was written by Jeffrey Kipnis, professor, Knowlton School of Architecture, Ohio State University. At the University of North Carolina at Charlotte. Call 704/687-4841 or visit www.coa.uncc.edu.

Joseph Rosa
New York City
November 9, 2004
Design historian Joseph Rosa, curator of the exhibition *Glamour: Fashion, Industrial Design, Architecture*, will discuss how new design and construction technologies have allowed once-excessive forms to become integral to function. At the Bard Graduate Center. Call 212/501-3011 or visit www.bgc.bard.edu.

Fourth Symposium: Plastics—Past and Present
Weil am Rhein, Switzerland
November 24–25, 2004
The fourth symposium on restoring synthetic materials will focus on the various issues pertain-



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ing to plastics and conservation. Cosponsored by AXA Art and Vitra Design Museum. For further information, call 49 0 7621/702-3153 or visit www.design-museum.de.

Winner's Lecture: City Lights Design Competition
New York City
November 8, 2004
The winner of the City Lights Design Competition, an international competition to select a new streetlight design for New York City, will discuss their winning entry and work. At the Center for Architecture. Call 212/683-0023 or visit www.aiany.org.

Professional Development: Strategies to Plan and Execute Effective Proposals
New York City
November 19, 2004
The Society of Marketing Professional Services N.Y. Chapter (SMPS-NY) offers informational events for principals and marketers in the field of professional services. At Haworth Showroom. Call 212/921-0061 or visit www.smpsny.org.

The Residential Architecture of John Russell Pope
Washington, D.C.
November 17, 2004
James Garrison will discuss Pope's residences in Washington and show how they relate to his body of work. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Enrique Norton
Washington, D.C.
November 18, 2004
Principal of Mexico City's TEN Arquitectos, Enrique Norton will present the firm's projects, which include the Chopo Museum of Contemporary Art and Brooklyn's Library for the Visual and Performing Arts. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Part 3: Wind
Houston
December 1, 2004
The final forum in the series "Earth, Fire, and Wind" sponsored by the Rice Design Alliance, "Part 3: Wind" will address the larger forces beginning to coalesce that will reconfigure our region, including economic, environmental, and social conditions. At the Museum of Fine

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Arts, Houston. Visit www.rice.edu.

Meejin Yoon
San Francisco
November 8, 2004
Meejin Yoon, an architect who teaches at the Massachusetts Institute of Technology, will speak at Timken Lecture Hall, California College of the Arts. Call 415/703-9562 or visit www.cca.edu.

Rodolfo Machado
San Francisco
November 15, 2004
Rodolfo Machado, a principal of Machado and Silvetti Associates and chair of the Department of Urban Planning and Design at Harvard University, will speak as part of the California College of the Arts Public Lecture Series. At Timken Lecture Hall. Call 415/703-9562 or visit www.cca.edu.

Michael Meredith
San Francisco
November 29, 2004
Michael Meredith is an architect, designer, and artist whose work has been shown at the Chinati Foundation. As part of the Public Lecture Series at the California College of the Arts. At Timken Lecture Hall. Call 415/703-9562 or visit www.cca.edu.

SITE:OFFSITE Redefining the Manufactured House
Austin, Tex.
November 19–20, 2004
The University of Texas at Austin School of Architecture is hosting a conference investigating groundbreaking work done by architects and industry in the factory production of houses. The focus will be on improving quality and resource effectiveness, historical example, cultural implications, and new fabrication technologies. For further information, call 512/471-1922 or visit www.utexas.edu/architecture.

Frederic Church's Olana: Vision and Reality
New York City
November 10, 2004
Evelyn Trebilock, head curator at Olana; Daniel Lane, the architectural conservator; and Jan Hird Pokorney, Olana project manager, will give an illustrated talk about American landscape painter Frederick Church's home and studio. At the General Society of Mechanics and Tradesmen. Call 212/730-9646 or visit www.classicist.org.

EMBRACE THE PAST.

New Classicism: The Revival of Traditional Architecture
New York City
November 17, 2004
Elizabeth Dowling, author and associate professor at Georgia Tech, will speak about her new book on the revival of traditional architecture. At the General Society of Mechanics and Tradesmen. Call 212/730-9646 or visit www.classicist.org.

The U.S. Capitol: Its Lessons for Today
New York City
November 23, 2004
Henry Hope Reed, honorary president and scholar-in-residence of the Institute of Classical Architecture and Classical America, and author of numerous books on architecture, urbanism, and the arts, will speak about his new book, *The U.S. Capitol: Its Architecture and Decoration.* At the Urban Center. Call 212/730-9646 or visit www.classicist.org.

International Christmas Workshop: Interactive Ideas
Istanbul
Application Deadline: November 19, 2004
Kadirhas University is offering two communication design workshops to design students and young professionals studying/working in the following fields: Architecture/Interior Design, Information Design, Information Management, Visual Communication, Graphic Design, Product Design, Multimedia/Computer Science, and Social Sciences. For more information, visit www.interaction-idea.info.

Urban Land Institute Fall Meeting
New York City
November 2–5, 2004
The Urban Land Institute will examine the future for urban development and investment, including trends in all segments of the real estate industry. Former U.S. President Bill Clinton and former New York City Mayor Rudy Giuliani will be headlining an impressive list of industry analysts and professionals who will discuss political, demographic, economic, social and cultural issues affecting urban areas. At the Hilton New York. Call 202/624-7086 or visit www.uli.org.

The NFPA Fall Education Conference
Miami Beach
November 14–17, 2004
The National Fire Protection Association Conference will provide professional development opportunities for fire and life safety specialists. At the Fontainebleau Hilton. For further information, visit www.nfpa.org/meetings.

Architecture Exchange East
Richmond
November 10–12, 2004
The region's largest building and design conference, featuring more than 60 educational sessions for architects, planners, engineers, interior designers, contractors, and landscape architects. Paul Goldberger, Pulitzer Prize–winning architecture critic and *New Yorker* staff writer, will present the keynote address. At the Greater Richmond Convention Center. Call 804/644-3041 or visit www.aiava.org.

20th Annual Build Boston
Boston
November 16–18, 2004
The premier convention and trade show for design, building, and management professionals brings together more than 350 of the nation's leading suppliers of building products and services and more than 14,000 international and U.S. architects, specifiers, engineers, builders, contractors, facility managers, and other industry professionals. At Seaport World Trade Center. Visit www.buildboston.

Competitions

The 2005 Latrobe Fellowship
Deadline: February 4, 2005
The purpose of the fellowship is to support research that will increase the knowledge base of the architecture profession. Sponsored by the AIA College of Fellows. Visit www.aiai.org/fellows_latrobe_2005 for more detailed information.

II International Best Diploma Projects Show–Competition
Florence, Italy
February 17–March 17, 2005
Deadline: November 15, 2004
The second edition of an international exhibition entitled *For an Ecological Future: Architecture, Environment and Design* is organized by the Romualdo Del Bianco Foundation for the education, promotion, and exchange of knowledge among people from different countries and cultures. Visit www.fondazione-delbianco.org.

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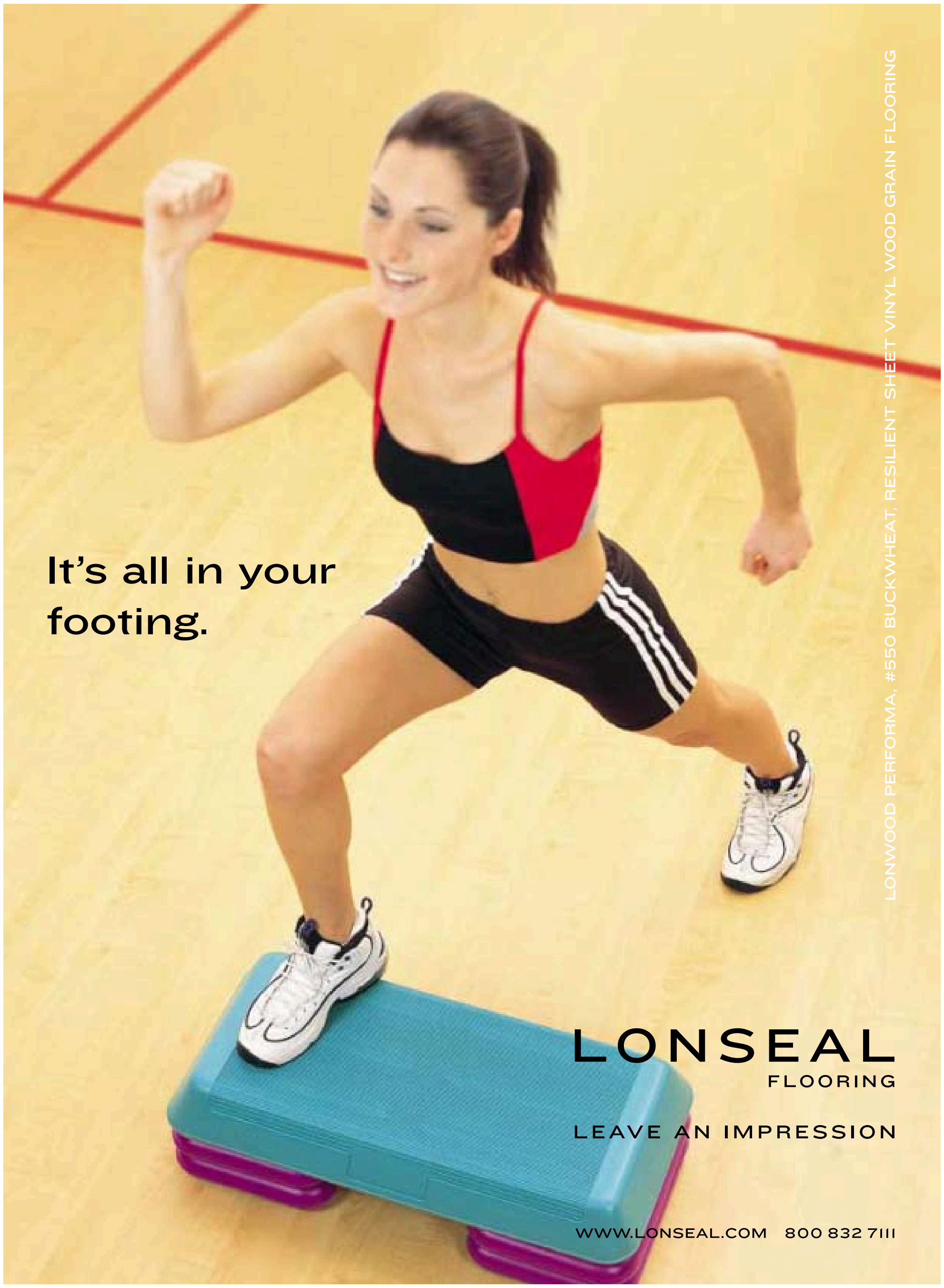
Dates & Events

2005 Rudy Bruner Award
Deadline: December 13, 2004
The Rudy Bruner Award is given to urban places that demonstrate the successful integration of effective process, meaningful values, and good design. RBA winners are distinguished by their social, economic, and contextual contributions to the urban environment, and often provide innovative solutions for our cities' most challenging problems. For information, call 617/715-3184 or visit www.brunerfoundation.org.

Flight 93 National Memorial Design Competition
Deadline: January 2005
The response to the violent acts in the skies over southwestern Pennsylvania on September 11, 2001, will be a National Memorial to the people who died in what has become known as the first civilian act of defense in the war on terrorism. The design competition welcomes all submissions of ideas that will commemorate the 40 heroes of Flight 93. For more information, visit www.flight93memorialproject.org.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McCormick Tribune Foundation Icon/Centerpiece Competition
October 11–December 17, 2004
Architects, designers, and artists are invited to participate in a juried competition to create a defining work of art to serve as the centerpiece of a new museum dedicated to First Amendment rights and corresponding responsibilities. Visit www.mccormickmuseum.org for more information.

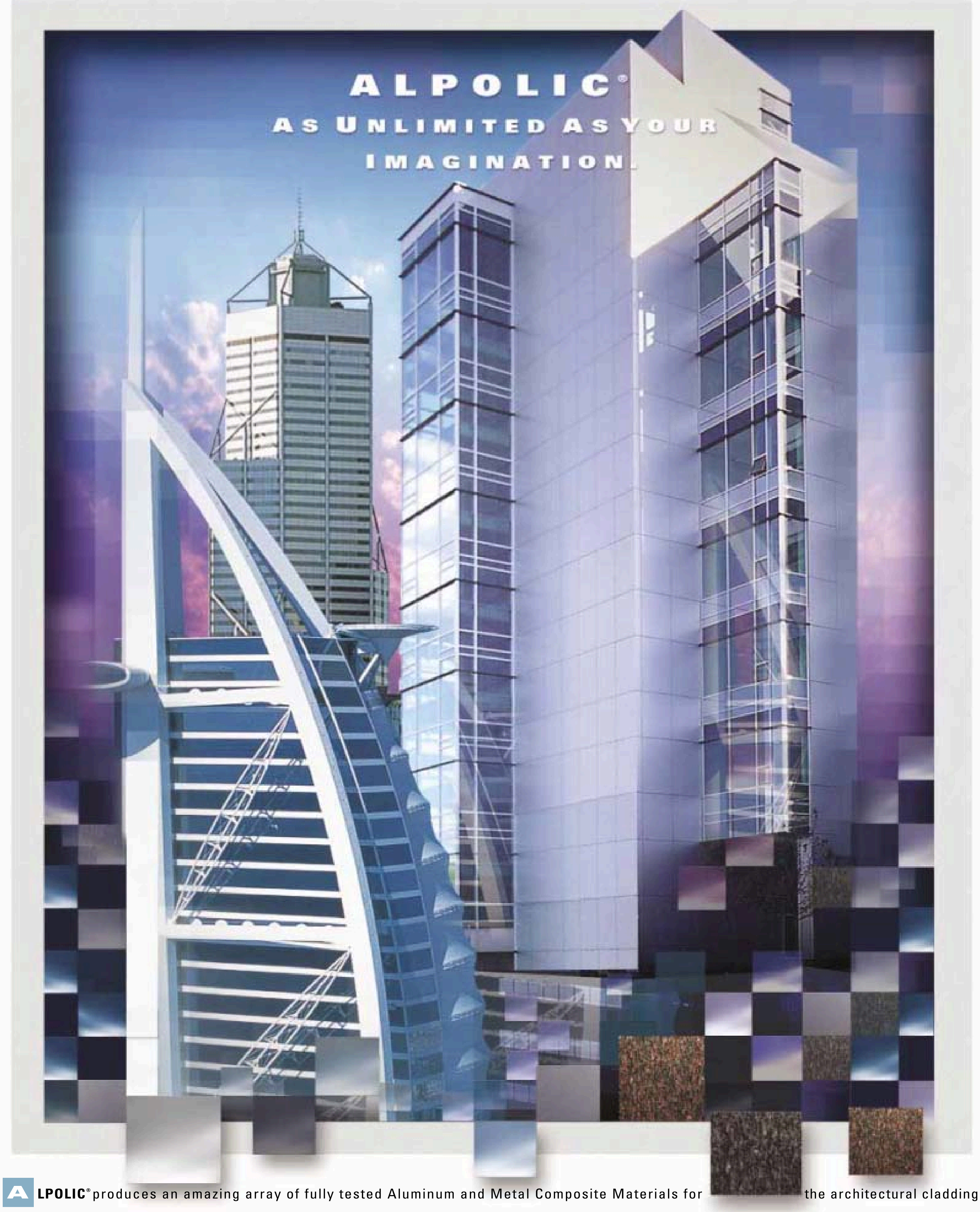
20th Anniversary Architecture in Perspective Competition
Deadline: December 3, 2004
The American Society of Architectural Illustrators' international competition honors the finest works of architectural illustration, both hand and digital. Call 614/552-3729 or visit www.asai.org for submission guidelines.

The CRCP Achievement Awards Program
Deadline: November 15, 2004
The Continuously Reinforced Concrete Pavement (CRCP) Achievement Awards Program includes four different highway categories, as well as a nonhighway structure performance category, as a way for owners, designers, and builders to showcase their assets and be recognized by their peers. For further information, call 847/517-1200 or visit www.crsi.org.

Knokke Casino Architectural Competition
Deadline: November 15, 2004
This competition is an open invitation to architects from around the world to engage in the creative design of unique architecture for a new casino. For more information, visit www.knokke-heist.be.

Ceramic Tiles of Italy Design Competition
Deadline: January 30, 2005
North American architects and interior designers are invited to submit residential, commercial, or institutional projects featuring Italian ceramic tile completed between January 2000 and January 2005. Visit www.italiatiles.com or www.italytile.com.

E-mail event and competition information two months ahead of event or submission deadline to elisabeth_broome@mcgraw-hill.com.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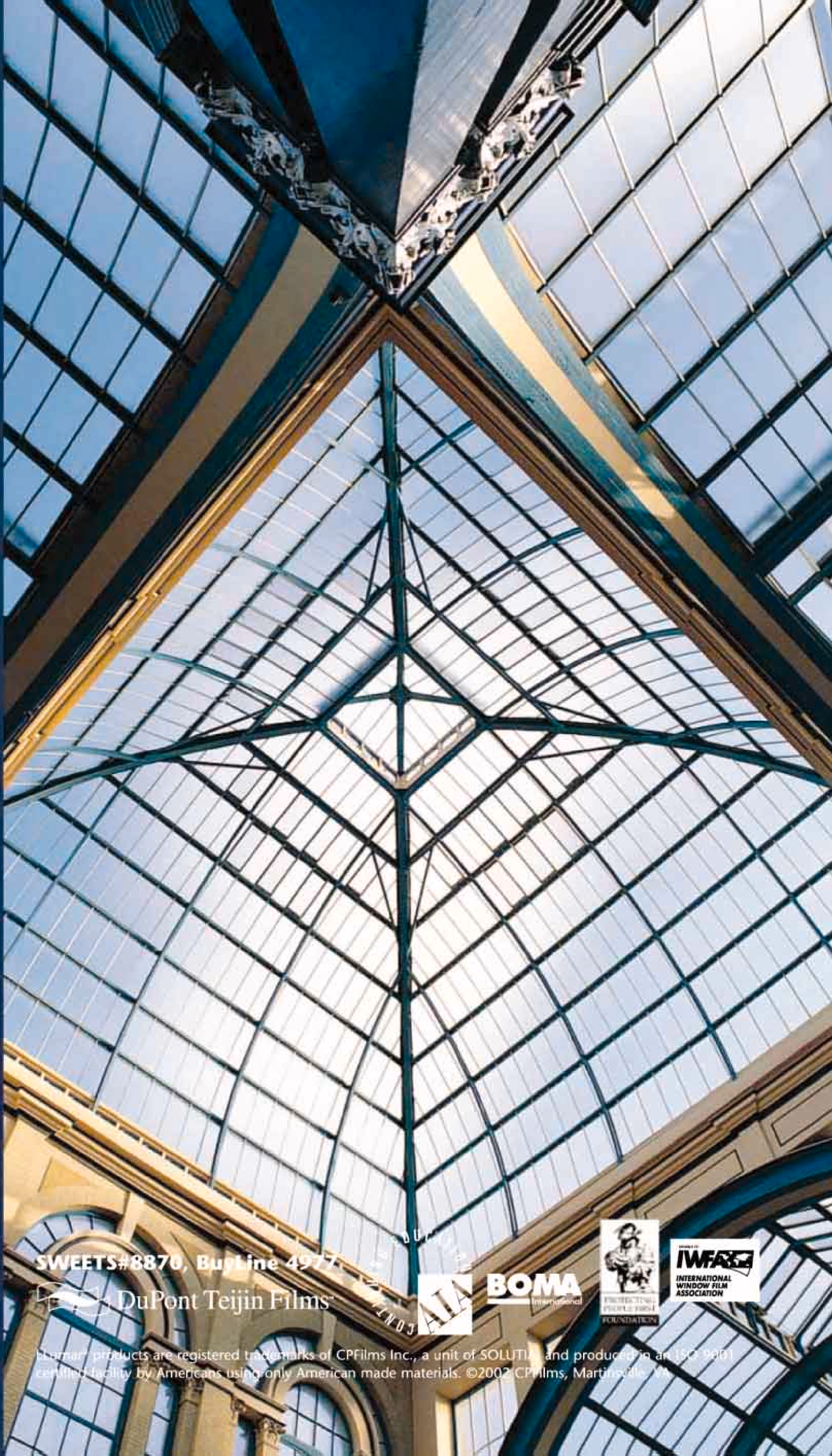

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After the storms: Geologists' perspectives for architects on building in coastal zones

Commentary

By David M. Bush, William J. Neal, and Robert S. Young

The stunning 2004 hurricane season highlights the folly of developing high-risk coastal areas. Yet in the wake of the destruction, the emphasis is already being put on rebuilding in the same high-hazard zones. This pattern of coming back "bigger and better" has been repeated numerous times in recent decades—such as the pushes after Hurricane Frederic on the Gulf Coast (1979) and after Hurricane Opal in the Florida Panhandle (1995)—setting the stage for greater financial loss, worsening evacuation efficacy, and increasing the potential for greater loss of life in the next storm.

Simply put, many coastal-zone properties should not be developed. Design and engineering is not going to change the rate of sea-level rise nor lessen the frequency or intensity of storms and their associated winds, waves, storm surge, and runoff. It is true that we have gotten better at predicting storm paths and evacuating threatened areas. We are even designing structures that can withstand much higher winds than in the past. But ultimately, developing high-risk areas is a losing battle, maybe not for the builder, but certainly for the homeowner and the general public.

The rush to the shore in recent decades has resulted in population growth rates three times the national average for areas within 5 miles of the shoreline. The resulting demand for ocean views and beach and waterfront access encourages development in high-to-extreme-risk areas, such as the beachfront, on lowlands adjacent to sounds, and next to finger canals—placing ever-increasing property investments and more residents at risk from the impact of storm winds, waves, and flooding.

David M. Bush is a professor of geosciences at the State University of West Georgia; William J. Neal is a professor of geology at Grand Valley State University; and Robert S. Young teaches in the geosciences department at Western Carolina University.

The concentration of population and vulnerable development is especially alarming given the projected increase in hurricane frequency and intensity due to changing cyclical climatic patterns and possibly from global warming, which portends an ominous future for coastal disasters. The problem must be addressed now.

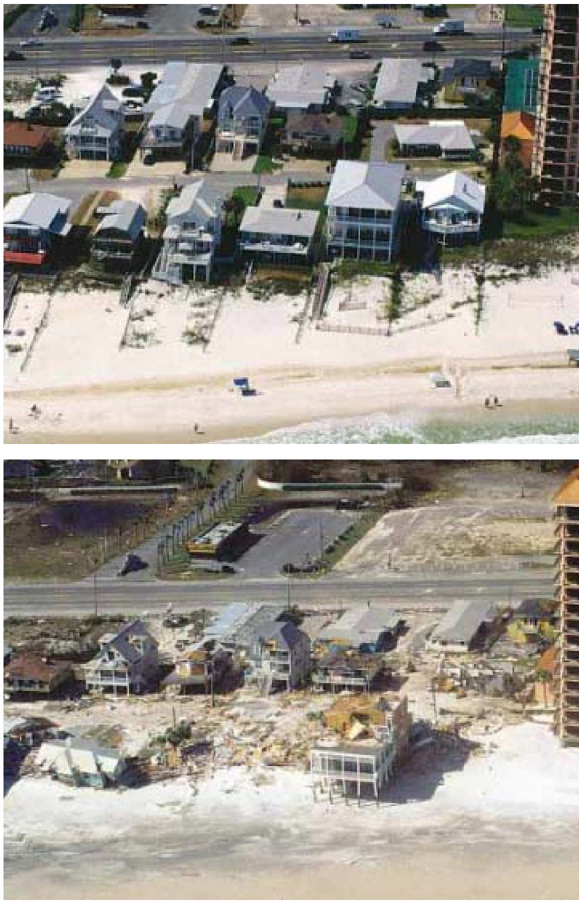
Storm history—learning from the past

The probability that a hurricane will make landfall at any given point along the coast in any given year is low, and the probability of a great hurricane almost makes such an event seem unlikely; but low probabilities give a false sense of security. If probability is a guidepost, then planners and designers should consider the probability of a major storm occurring during the lifetime of the structure. In that view, storm history tells us that such a storm is almost a certainty. Furthermore, as we've seen from the convergences of Charlie, Ivan, and others, the occurrence of one hurricane does not reduce the likelihood that a similar storm will strike again in the remainder of the season, next year, or in multiple years to come.

Thanks to Weather Service warnings, radio and television communications, and evacuation plans, death tolls from modern hurricanes have declined. But this decline has also led to a false sense of security and contributed to complacency about controlling coastal growth. Hence, while storm deaths have declined, damage totals have increased dramatically. Much of this cost is born not by coastal residents and developers, but by all taxpayers and any member of the general public who pays an insurance premium. Not surprisingly, greater degree of property loss parallels the number of unsafe developments, those where the carrying capacity of the coastal zone has been exceeded.

Population growth has reached such levels that it has begun to exceed the capacity for safe evacuation. Evacuation time in some areas takes considerably longer than the minimum time allowed for advance evacuation warning (as little as 9 to 12 hours).

Our knowledge of coastal hazards, carrying capacity, storm history, and risk mapping has been in place since the 1970s, but the coastal community at large has ignored this available science. Federal and state regulations of the coastal zone under the Coastal Zone Management Act, the Coastal Barrier Resources Act, the National Flood Insurance Program, and similar programs also have failed to check unsafe development or the escalating costs of storm damage. For example, much of the northern



A row of houses in Orange Beach, Alabama, were inappropriately sited on top of a dune instead of behind it, leading to significant damage.

PHOTOGRAPHY: COURTESY U.S. GEOLOGICAL SURVEY

end of North Topsail Beach, North Carolina, is in a coastal barrier resources zone designated so that newly constructed homes and businesses are not eligible for national flood insurance. However, after Hurricane Fran (1996), federal assistance was provided to the town to rebuild infrastructure such as roads and bridges, which allow for future continued development, thus defeating the goal of the federal program.

Hazards, economics, and politics

Nature is not the only arena of the coastal zone, and hazardous processes are not the only players. Property owners, planners, and public officials can mitigate the impact of hazards, but their domain is one of politics and economics, governed by a unique set of rules. Our survey of coastal communities reveals great diversity in responses, yet enough similarities exist among communities to make several generalizations.

One incongruity in coastal development is that development sites are chosen on the basis of market forces, not Nature's forces. As a result, most coastal communities came into existence without hazard planning, although there are a few exceptions, such as Kiawah Island, South Carolina, and Seaside, Florida. In older developments, residents learned from experience, and low-risk sites tended to be developed first, leaving high-risk areas, such as the New Jersey Shore and Orange Beach, Alabama, to accommodate today's spiraling growth. With most recent coastal development, the emphasis is on build and sell, not analysis of hazard risk, hazard mitigation, or future relocation. Furthermore, the construction industry prospers in the post-storm rush to rebuild. As a result, one catastrophe often sets the stage for bigger catastrophes. Post-catastrophe "recovery" becomes a time of shock and haste to put things right again. Instead of implementing careful relocation and risk reduction, recovery efforts result in houses and multihousing units rebuilt "bigger and better" in the same high-risk zones.

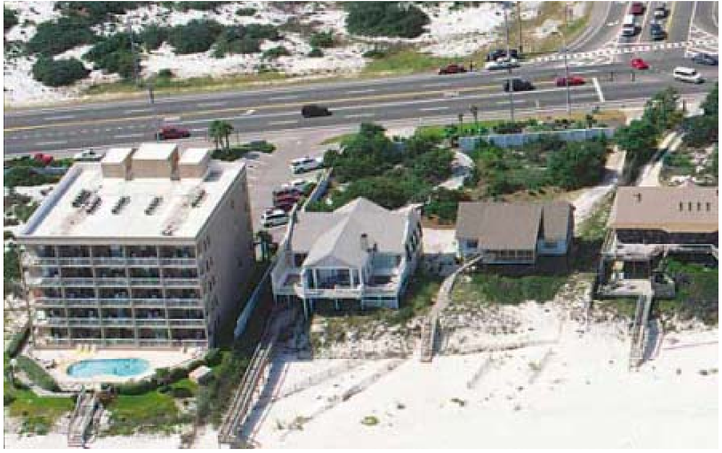
Recommendations: the rules of the sea

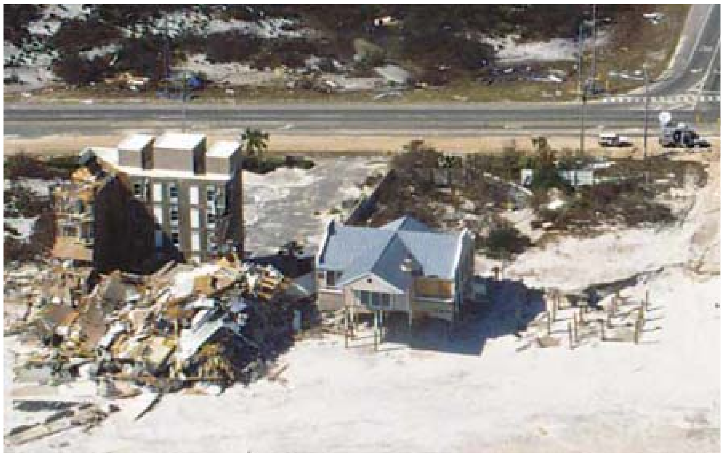
Our first recommendation to the thoughtful architect is to assess the hazards of a particular building site with the goal of steering clients out of high-risk areas. If a project must be designed within a potential coastal hazard area, we offer the following guidance: recognizing the physical processes active within coastal environments is the fundamental step toward defining hazard areas, and it forms the basis of a coastal-processes approach to site selection, building design, and property damage mitigation. There are also other important factors to keep in mind.

First, the coastal zone is unique and requires unique management strategies. Coastal environments are far more dynamic than inland areas. The traditional grid-development pattern and related construction used inland is inappropriate for the coastal zone and increases the probability of impact by natural processes.

Moreover, individual coastal physical processes must be identified and understood from a holistic perspective. Beaches, dunes, marshes, maritime forests, and the offshore are part of one large interrelated geobiologic system. Building in the path of natural processes creates the hazard.

Additionally, building siting, design, and property-damage mitigation must take into account the entire character of coastal processes and environments. Solutions need to be broader than considering single risk factors or individual sites. Development plans must take into account the regional effects of sea-level rise, erosion rates, flood zones, overwash zones, inlet proximity, and other coastal processes/hazards. Property-damage potential is site-specific, but each site is different. The storm-to-storm crisis approach should be replaced by established long-term solutions for this long-term problem, such as planned relocation.





Multistory buildings are usually considered well-enough engineered to withstand a hurricane. But in Orange Beach, a medium-rise building collapsed due to undermining and direct wave attack during Hurricane Ivan.

Finally, be sure to conserve, augment, and repair. Regional and site planning should always seek to maintain the natural environment. Sand volume must be preserved or increased. Vegetation cover provides natural protection. When a landform is altered, its stability is altered. Stabilization may be augmented by adding and anchoring sediment, planting natural species, or even constructing artificial landforms. Alterations due to development should be repaired. Damage to the natural setting reduces the afforded natural protection. Such damage must be repaired to mitigate future property damage. In many cases, such efforts will entail little more than restoring small areas to their predevelopment state by rebuilding dunes and planting grasses and other maritime vegetation.

Final note

Hazard assessments and mitigation recommendations are the realm of scientists and engineers, but implementation falls into the political/legal arena. While protective regulations such as dune protection ordinances, setback laws, and zoning are based on scientific principles, the rules of politics often override the rules of the sea. One example is the overuse of building variances. In some coastal communities, such variances seem to be the rule rather the exception, again putting property and people at risk. Florida has granted variances for buildings to be constructed seaward of the the construction setback line, and in Kill Devil Hills and South Nags Head, North Carolina, where shore hardening structures are not permitted, temporary sandbag walls and groins have been permitted, defeating the purpose of regulation. The architect has the final opportunity to reduce hazard vulnerability in developing site and building plans that follow the rules of the sea. ■

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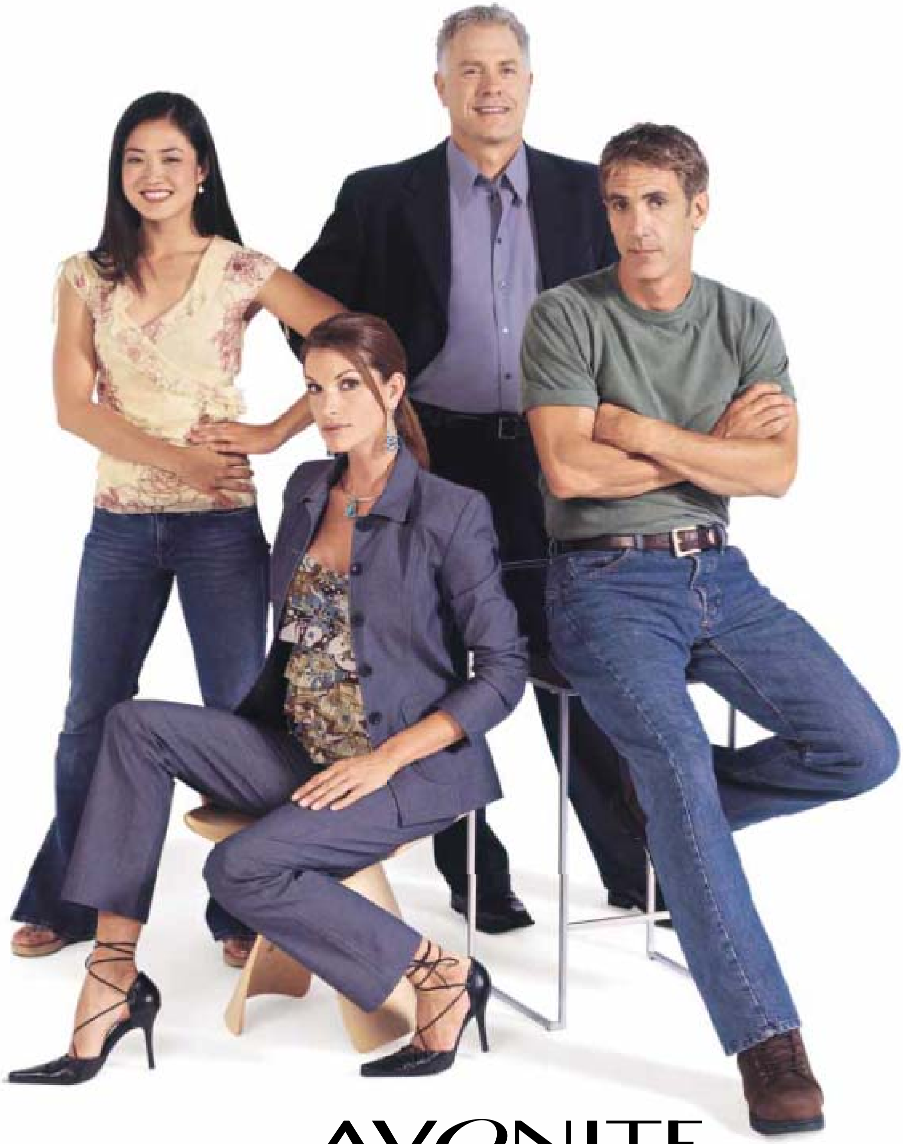

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FOR THE EMERGING ARCHITECT

This month, **archrecord2** visits Los Angeles to check out residential design and then jets off to New York to look into intercontinental design. In **Work**, two busy architects moonlight in their downtime to transform a Midcentury Modern house into a home for themselves. In **Design**, we catch up with an Australian architect whose work is featured in a traveling exhibition. As always, visit our Web site for more information on these stories.

WORK

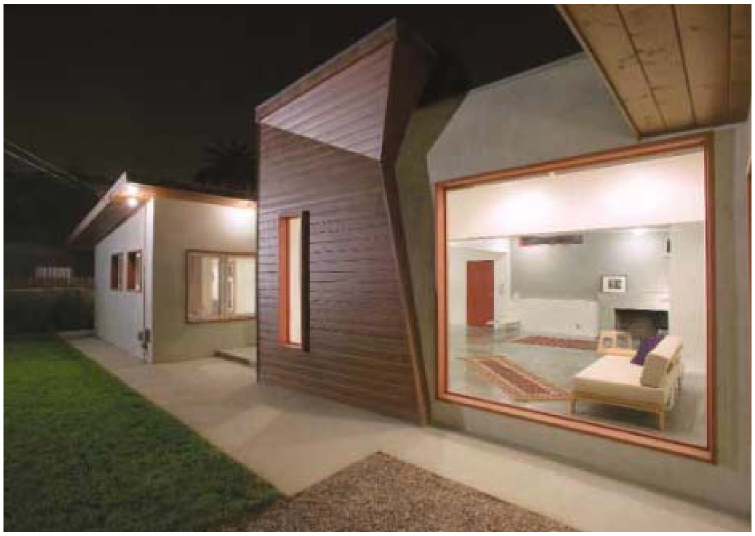
Updating Modern L.A. Living

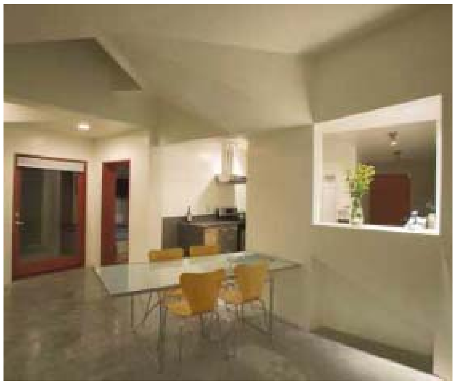
It could be the premise of a new reality television show—a young couple, a house in need of renovations, a small budget, no time, but lots of energy. The twist in this plot is that both protagonists are architects working in Los Angeles. By day, Chinmaya Misra, a graduate of Sci-Arc, works in the offices of the Jerde Partnership, while her husband, Apurva Pande, a graduate of the architecture program at UCLA, is employed in the offices of Frank Gehry.

Misra and Pande began by scouting the L.A. area for affordable yet distinct neighborhoods for their future home. Their search was over when they discovered a dilapidated 1950s Modern house in West Adams. “It was in terrible shape, but we wanted to keep with the spirit of the house. We decided not to change the footprint and to retain the shell,” says Pande. With the prospect of their own design-build project, the couple agreed to several self-imposed guidelines. “We knew this would be a fully engaging project, and we knew we would have to do it on our own time, as our office jobs are our first priority,” explains Misra. They also agreed to a strict rule—no financial help from others. Armed with 10 new credit cards, the pair began their moonlighting.

To begin the design process, the two agreed—given their shared enthusiasm for experiments in Modernism—to eschew ideological predilections. “We wanted to avoid rigid approaches,” Misra explains, “but we had a strongly held principle regarding the use of physical models as a litmus test.” No matter how mundane the detail, it was worked into one of the 11 models the couple eventually stockpiled in their increasingly cramped apartment. Pande admits that their method of designing as they built, as well as their reliance on models rather than drawings, made the process more complex and time-consuming. But, he says, “If it weren’t for the detailed models, the contractor would not have understood what we were trying to achieve.”

The 1,600-square-foot, three-bedroom residence was conceived to be a free-flowing space between the interior and outdoors. Within the main living area, the “spine” of the house runs from the front to the back door. Incorporating what the pair refer to as “a creative interpretation of walls”—surfaces punctuated by openings—and installing skylights overhead, Misra and Pande have created the feeling of open space in their newly designed interior. *Randi Greenberg*





Leaving the shell of the house intact, a more modern facade was created (right two). The interior is articulated by walls that have been punctured to provide openings and nooks.

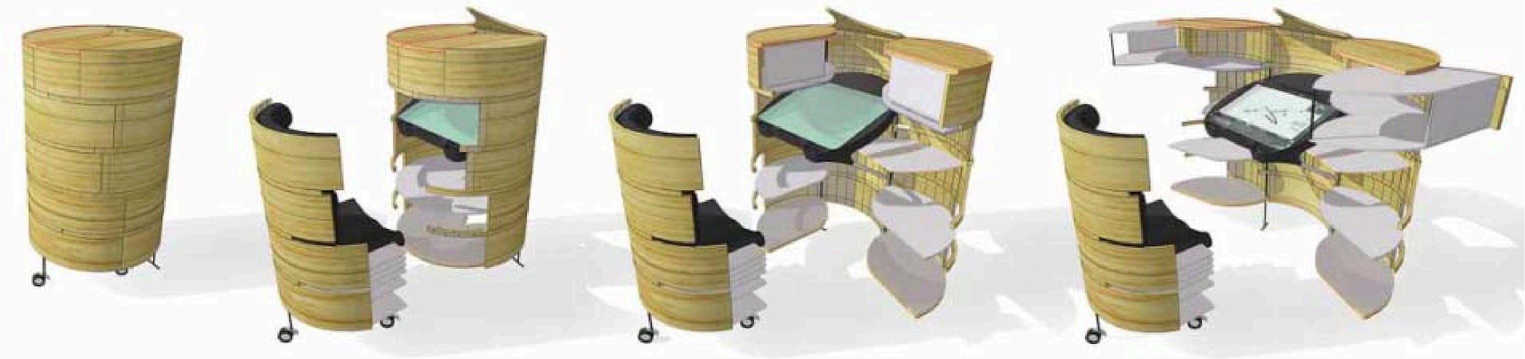
PHOTOGRAPHY: © MICHAEL MAGAT

DESIGN

Discovering Designs from Down Under

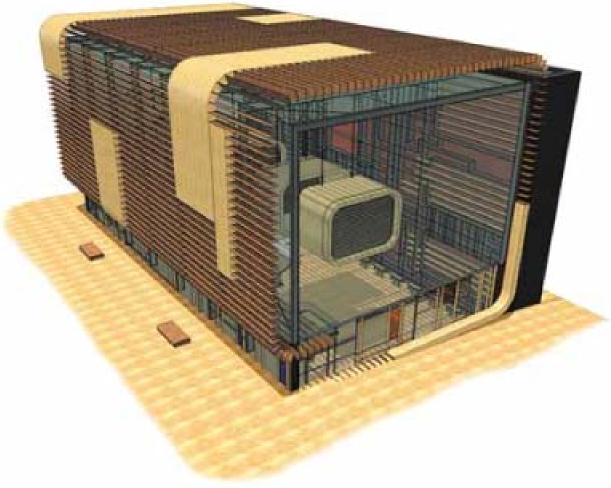
This past September, the Art Directors Club (ADC) in New York City, a membership organization for visual communications, premiered its most recent biennial, *Young Guns*, a competition that celebrates innovative people under the age of 30 in creative fields including graphic design, art direction, advertising, photography, and publishing. In its fourth year, ADC *Young Guns 4* widened its normally graphic-based scope to include young professionals in the fields of environmental design, object design, and fashion design. Opening the contest to a worldwide pool of entrants, as opposed to invitation-only participants from the New York City area, was also new to this year's competition. Australian architect Andrew Maynard took full advantage of this opportunity and has become the only architect (and Australian) chosen to exhibit at *Young Guns 4*.

Maynard felt that thanks to the expansion of categories, specifically in environmental and object design, he had found his niche. "I felt at the very least the judges would find my Design Pod interesting," he says. And on the opening night of the exhibition, he discovered he was right. "One of the organ-



The Design Pod, Competition Entry, 2000

In a time when the office has become more of a shared and less of a private environment, Maynard designed a personal workstation that can create a sense of ownership and territory.



Japan Library, Competition Entry, 2003

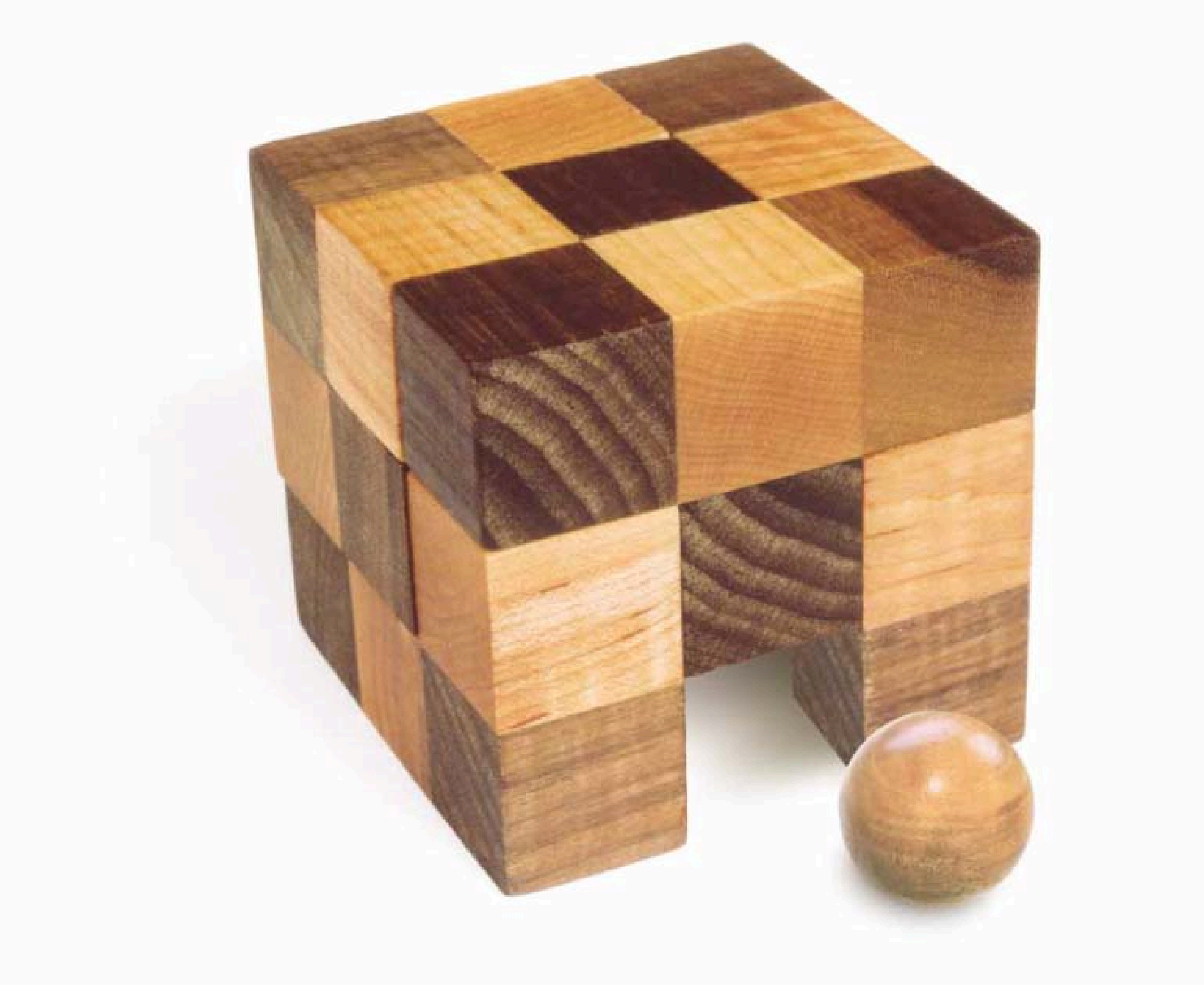
In response to the conventional library, in which the sorting and delivery of books is often a hidden, mechanized, and digitized process, this design seeks to make the experience more open and visual.

Kings Meadows Self Storage Tasmania, Australia, 2003

In exploring the "architecture of the mundane," Maynard was faced with the task of creating suburban storage units. The architect believes in the importance of reponsible suburban design.

IMAGES: COURTESY ANDREW MAYNARD

Sure, you overcome puzzling design problems.



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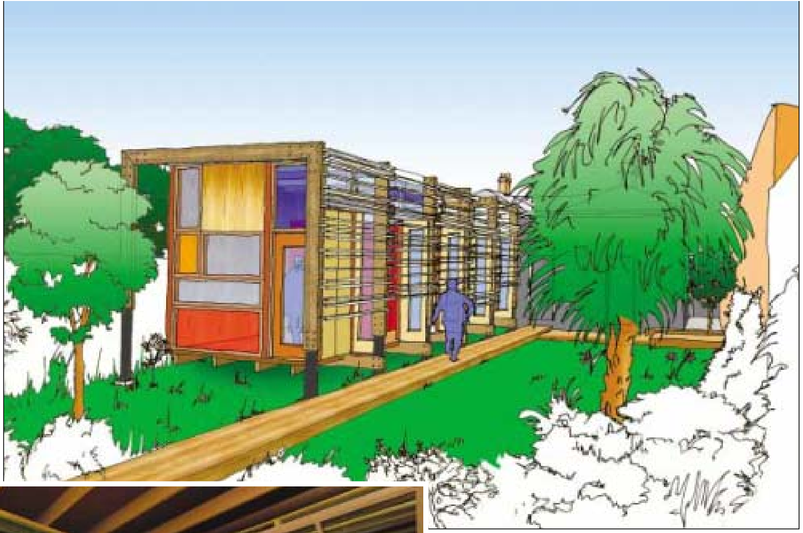
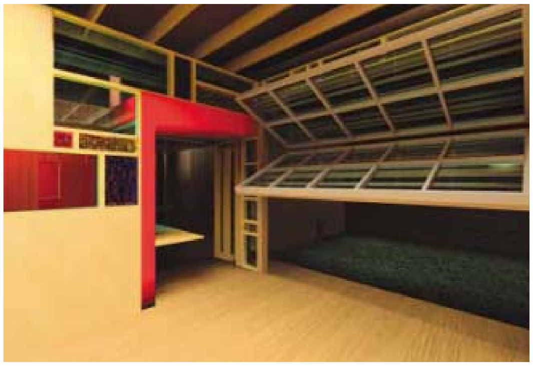


izers of the event explained to me that the judges were particularly enthusiastic about the Design Pod," the architect continues. Recognized with both an Australia/New Zealand Award as well as the grand prize of the 2000 Asia Pacific Design Award, Maynard's Design Pod is a new way of thinking about personal space in an office environment. The lightweight structure could allow the user to easily transport the pod, while the media component—or Design Desktop—would be completely viable outside the office.

While many other competitions are category-driven, the *Young Guns 4* recognizes an entrant's entire body of work. Thirty-year-old Maynard, who received a bachelor's degree in both environmental design and architecture, opened his own practice in 2002 and now has the opportunity to showcase his portfolio to an international audience. The cross section of the architect's projects shown at *Young Guns 4* includes built work, current commissions, and competition entries. Maynard's work runs the gamut from residential to commercial buildings to conceptual designs. His new concepts in design, including a Japanese library, an arts precinct, and protest shelters, have won him international attention.

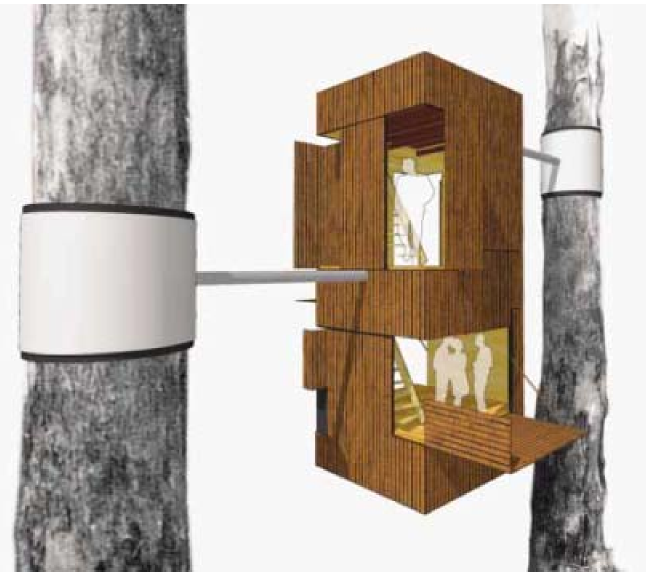
After the show, consisting of all 35 selected participants, closes in New York at the end of October, it will travel worldwide. *R.G.*

For more of Andrew Maynard's completed projects and works in progress, go to archrecord.construction.com/archrecord2/



Beachcroft Orth Residence
Victoria, Australia, 2001
A study in "honesty in design," the timber used in construction was left in its raw state to weather over time. Synthetic materials used in the project—laminate and paint—provide a stark contrast to the natural materials.

Styx Valley Protest Structure
Tasmania, Australia, 2004
Although protesters have already been gathering within the forest, this new design concept would shelter them in extreme weather conditions. Additionally, the shelter would be attached to three trees, thereby spreading the load and saving more endangered trees in the process.



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Getting it right (maybe a little too right) in well-behaved England

Critique

By Robert Campbell, FAIA

Think of this column as a letter to a friend about a recent trip to England.

I was tagging along with the Seaside Pienza Institute, which is an informal gang of mostly American architects, educators, and developers all of whom subscribe, more or less, to the principles of the so-called New Urbanism. They agree, at least, that they prefer walkable towns to car-culture sprawl.

Sprawl is something you certainly don't see much of in rural England. It's amazing to an American: no roadside Dairy Queens, motels, billboards, used-car dealerships, suburban malls, or scattered single-family houses. Beautiful as it is, it's possible to get bored. The endless green countryside, unviolated by trade or commerce, bespeaks the heavy hand of a ruling bureaucracy, as it once spoke of a ruling aristocracy. Where, you ask yourself, is the insurgent who breaks the rules? Where is the bubbling up of private initiative that makes life irrational and interesting? Can I buy some fireworks, please?

They don't let sprawl happen. We talked to several government officials who told us there is a greenbelt around every city, town, and village. You can't develop anything in that belt unless you can prove to government planners that (a) there's a need and (b) there's no capacity for growth on existing sites inside the town limits. The "thrill of walking from the town into the country," as one speaker put it, is preserved by government fiat.

I'm certainly in favor of a sharp line between town and country. But with this same group, I toured Tuscany last year. There we discovered that the equally bucolic Italian farm landscape is uneconomic and survives only because it's considered historic and is subsidized by the European Union [RECORD, October 2003, page 67]. England has similar problems, its agriculture now threatened by cheaper overseas imports. One group is addressing that problem with the pleasingly named "Eat the View" initiative, trying to get town dwellers to buy fresh produce grown in the immediate scenic surroundings.

Logical there; heretical in U.S.

Planning happens on a big scale, too. We learned that the government has identified four national corridors where growth will be encouraged. The major one lies along the new rail link to mainland Europe. It's a proposal as logical there as it would be heretical in the U.S.

We visited Poundbury, the new town sponsored by the Prince of Wales and planned by New Urbanist guru Leon Krier, who met us there. He said architects should imitate rather than invent, and noted that "nobody has proposed an anticlassical Chianti." He also said, in a sentence worth thinking about, that "architecture should be divorced from art history."

Poundbury obeys the principles of Jane Jacobs and the New Urbanism. It's mixed-use and dense. The houses don't float on wasteful green lawns; they butt up against one another in traditional rows. Streets wander around as unpredictably as in a medieval village, in a way that's maybe too self-consciously picturesque. Parks are banished to the perimenter, so that the town itself can remain compact and walkable. Cars are tucked semi-visibly in parking courts. It's a real town, not just a bedroom burb, with commerce and light manufacturing.

I have to admit I was amused to learn that although Poundbury is only one-fifth built, the serpent of Nimbyism has already raised its hissing head. A group has been formed that calls itself PROD: Poundbury Citizens Opposed to Density. At the time of our visit, PROD had just succeeded in getting planning authorities to deny permission for a modest new apartment building. These are guys who chose to live in a traditionally dense, compact settlement, and who paid a premium to do so (Poundbury has been a marketing success). They then turn around to protest the very qualities that, presumably, attracted them in the first place. Although I think PROD is selfish and absurd, it's somehow reassuring to know that contrariness can still flourish in a model community. Krier, as usual, gets it right. When you do a new development, he says, "You must build the noxious uses first or the residents will prevent them."

They love to talk about architecture in England. George Ferguson, the current president of the Royal Institute of British Architects, has proposed an X rating for works of architecture. He hasn't explained the details, but the idea is that really terrible buildings would be given the X in the hope that, labeled with such a stigma, they might be demolished. Perhaps the govern-

Sponsored by Prince Charles, Poundbury follows New Urbanist planning rules.

PHOTOGRAPHY: © TIM GRAHAM/CORBIS

Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize–winning architecture critic of The Boston Globe.

ment could subsidize the demolition, or perhaps it could refuse needed permissions or benefits. One delights in imagining the star-chamber gathering of taste police who would meet to award the X listing. Alas, it probably won't happen.

The hottest argument at the moment is over a government policy that says, or seems to say—the wording is the usual bureaucratic fog—that traditional styles of architecture are now banned in the British countryside. The law formerly banned any large new house in open countryside, since the government policy, as noted above, is to keep development in towns. But it was modified—with backstage pressure, everyone thinks but can't prove, from Norman Foster—to permit houses that are "truly outstanding and groundbreaking" and reflect "the highest standards in contemporary architecture."

Architects who practice in traditional modes believe this is a deliberate prohibition of historic styles, and they're up in arms, as are Americans like Andres Duany. A member of Prince Charles's staff suggested to me that if you were to ban architecture that imitates the architecture of some previous era, you'd have to demolish half of London. Gothic Revival? Palladian? Even a landmark like Tower Bridge is merely thick clothes of traditional stone over a modern steel frame.

Speaking of Foster, his office courteously arranged a private tour of the master's new office tower in the financial district of London, the so-called Gherkin. (Taciturn Americans lack the gift for nicknames that come so easily in the more verbal culture of the Brits.) A gherkin is a pickled cucumber, and Foster's tower does indeed look like a pickle or a fat cigar standing on end [RECORD, May 2004, page 218]. I loved and hated it. From an urban point of view, it's remarkably unsocial. It wraps itself haughtily in its glass cloak, like an operatic diva, ignoring everything around it. The architecture tells you this is a generic building that could be sited anywhere. It offers nothing to the life of the street. The ground floor, which is tiny, as befits the end of a gherkin, contains only an elevator lobby.

A vertical cul-de-sac

Upstairs, though, if you're privileged to go there (the whole building is occupied by a single Swiss insurance company), the place is remarkable. Glass atriums spiral up the exterior, offering fresh air to every occupant. At the top are a restaurant and bar with spectacular views over the city, at least until the next tower blocks them. In a talk at Poundbury, the ever-quotable Krier fulminated about skyscrapers. They are, he said, "network disrupters" and "catastrophic social isolaters." A skyscraper is a "vertical cul-de-sac"—cul-de-sac being, probably, the most vicious insult a New Urbanist can utter. And indeed, the Gherkin functions more like an elitist club than a connected piece of the city. But it's an elegant work of architecture. Four days after my visit, when the Gherkin opened briefly to the public, the queue went around the block. Television crews were present to record the event. It's hard to imagine that kind of interest in a work of commercial architecture in the U.S.

Incidentally, architectural techies should check out the window-washing system at the Gherkin. Cleaning a building of this shape is a challenge, to say the least. Foster and consultants had to invent an elaborate crane and boom that climbs around the exterior like a giant spider. Let's hope it works. As every architect knows, in architecture you don't get to build, test, and improve a prototype before going on to the production model. You have to get it right the first time. ■

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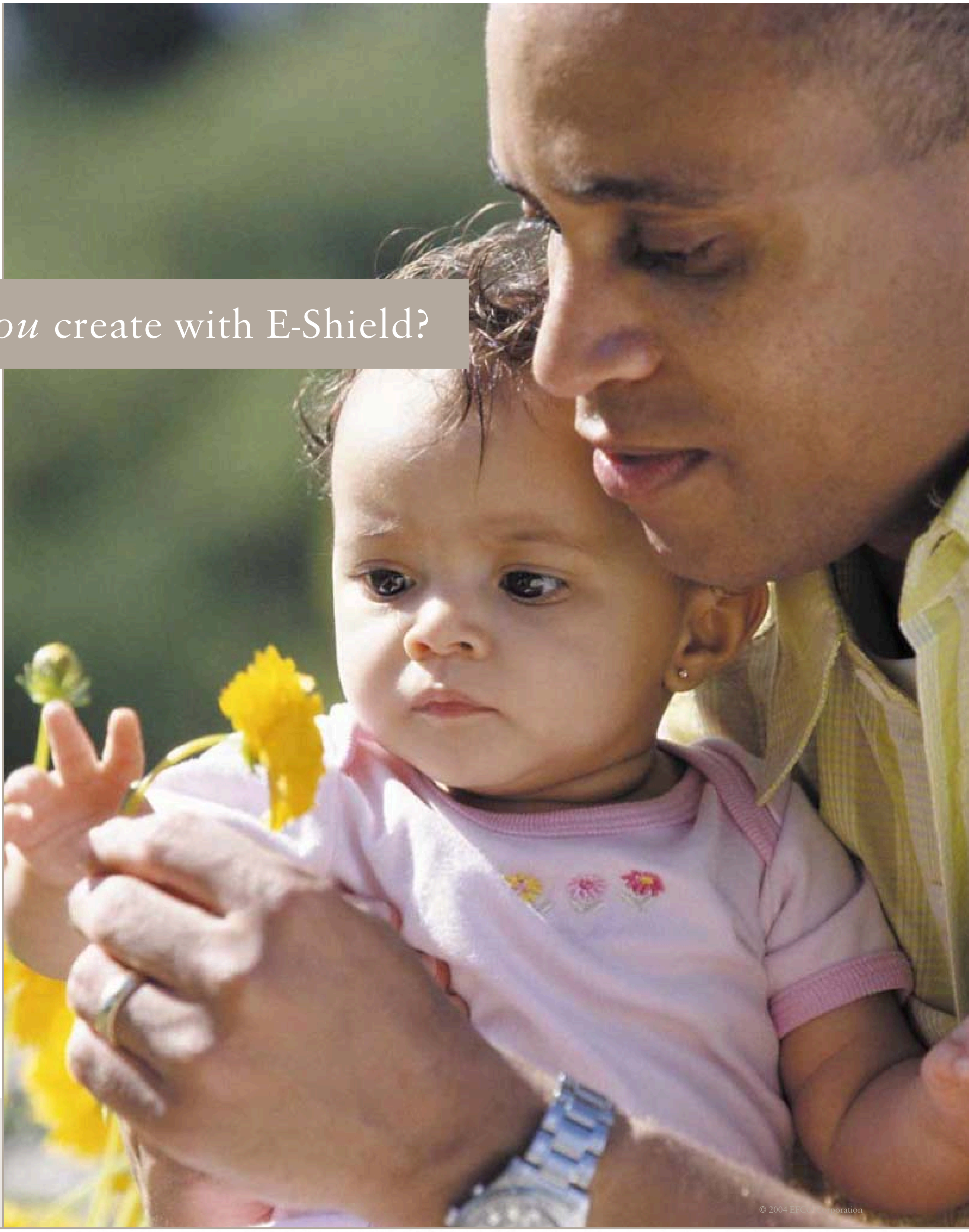

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Coming in from the cold: How politics and architecture mixed in the postwar era

Books

Cold War Hothouses: Inventing Postwar Culture from Cockpit to Playboy, *edited by Beatriz Colomina, Annemarie Brennan, and Jeannie Kim. New York: Princeton Architectural Press, 2004, 287 pages, $28.*

When World War II ended and corporations that had been making armaments retooled, the result was Barbie dolls and Tupperware, according to *Cold War Hothouses*. The overreaching, sometimes glib premise of the book is that the new focus was entirely domestic: bomb-shelters, window air-conditioners, kitchen appliances, garden products, and drive-in theaters—which rolled living room, bedroom, and kitchen into one. Even newly opened national parks, writes Jeannie Kim, were extensions of domestic space. The parks were meant for viewing from a car, a home on wheels, and typically they had flat-roofed visitors centers with open plans that resembled those of postwar suburban houses.

Many cold war consumer products had military origins. The aluminum house was a transformation of the soldier's demountable, temporary home, the Quonset hut. Kites, used during the war as part of rescue kits and for target practice, were the inspiration of playful houses by Ray and Charles Eames. The logic of the cockpit became the logic of the office cubicle. The postwar years shifted emphasis from the public realm to the private or domestic, write the authors, but the era also changed private into public: Rooms became open spaces with moving partitions, and Hugh Heffner's 1950s version of erotica eventually made its way into bedrooms across America via television.

Sometimes the authors go overboard in developing their single-track thesis. Beatriz Colomina, for instance, writes that "public space could only be sold by offering it as a form of domestic privacy not so different from that experienced in the suburbs." Roy Kozlovsky domesticates even the Beat poet Jack Kerouac, describing the car Kerouac drove cross-country four times as both "a domestic machine for the heterosexual family" and a machine that Kerouac used to shirk domestic responsibilities. Kerouac wrote *On the Road* on a long scroll of drafting paper to mimic the continuous road trip experience.

Cold War Hothouses was developed from seminars and workshops about postwar America held at Princeton's School of Architecture between 2000 and 2002. The material is organized into very readable chapters with such titles as "Cockpit," "Forecast," "Plastic," "Playroom," "Toy," and "Pornotopia." They show how wartime industries also adapted the tools of military forecasting to commerce and advertising.

The book has a wealth of intriguing ideas, some of which seem hyperbolic, as when Colomina elevates the suburban home to a bulwark against Communism and the suburban housewife to an air-traffic commander overseeing her troops from the kitchen of an open-plan house. When she writes about flexible residences made of light-weight parts as "engineered for rapid deployment," she seems to forget that European architects were experimenting with flexible open plans well before World War II.

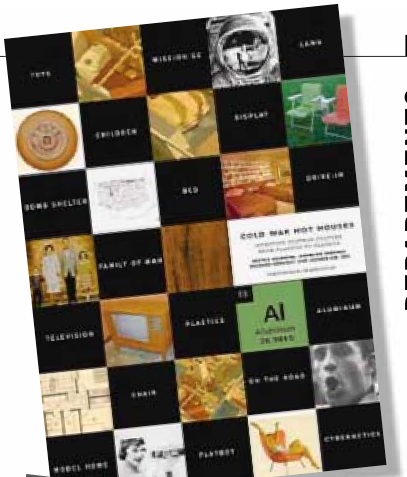
So read *Cold War Hothouses* judiciously and with a gimlet eye, but read it. The book brings freshness and new interest to the cold war era.
Andrea Oppenheimer Dean

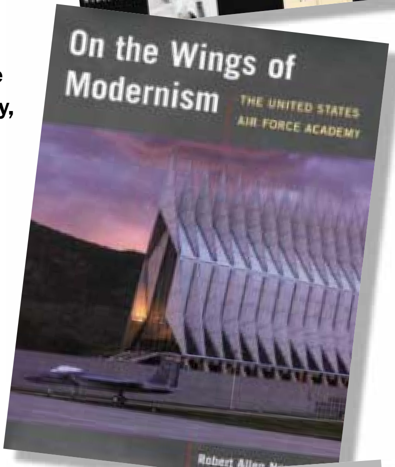
On the Wings of Modernism: The United States Air Force Academy, *by Robert Allen Nauman. Champaign: University of Illinois Press, 2004, 173 pages, $45.*

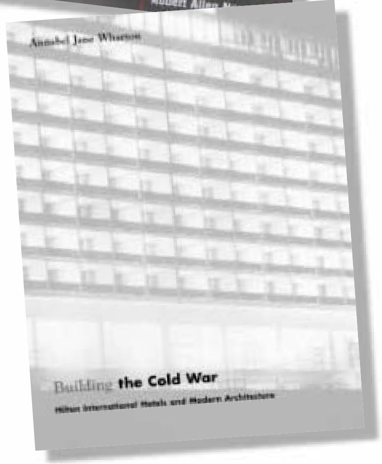
Robert Allen Nauman reminds us in this study of the genesis, design, and construction of the United States Air Force Academy, that the academy was as much about politics and cold war culture as about architecture, and therein lies the book's great value.

When President Dwight Eisenhower established the Air Force Academy 50 years ago, the best site for the "West Point of the Air" was in Wisconsin. Ike, however, did not want to award Senator Joseph McCarthy such a plum. The First Lady was from Colorado, so it seemed a good idea to place the new campus in the Rockies and thereby spread more federal largesse across the West.

Skidmore, Owings & Merrill's quest for the commission required considerable organizational and




On the Wings of Modernism
THE UNITED STATES AIR FORCE ACADEMY
Robert Allen Nauman



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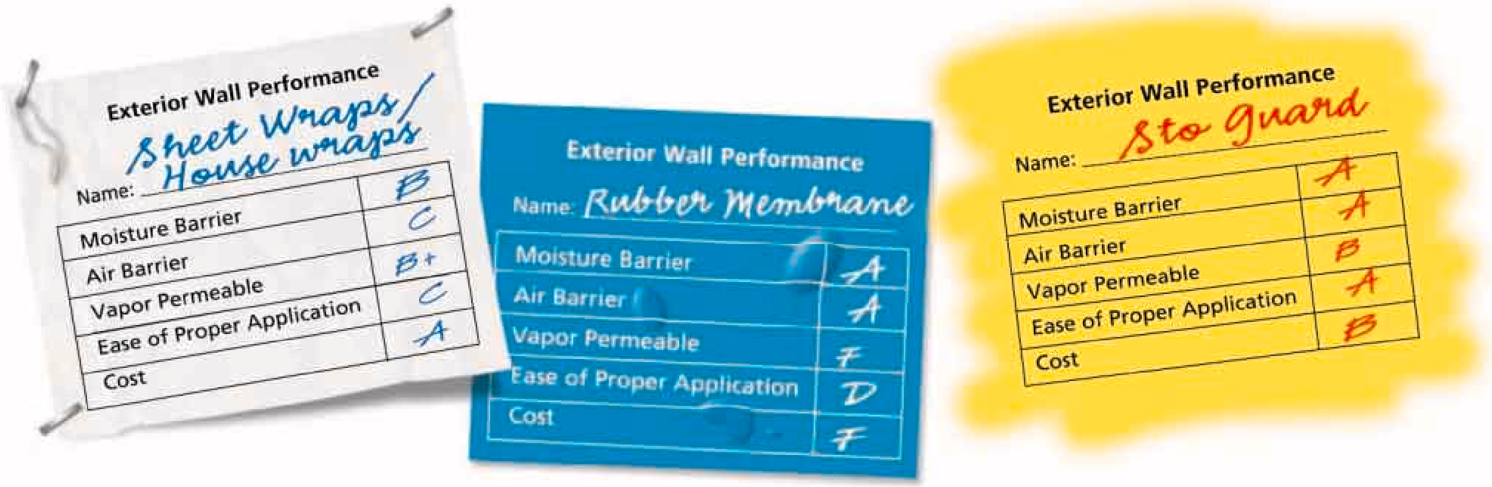

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diplomatic skills, including martini lunches with congressmen, the clever use of Ansel Adams photographs, and a lot of showmanship. More than 300 design firms applied for the job, but only a few had as many useful connections with those in power.

Frank Lloyd Wright told Congress that the architects at SOM were "commercial artists," designers of "a factory for birdmen." (The American Legion's threat to "reveal his past antimilitaristic activities and associations with Russia" had removed Wright from consideration, Nauman writes.)

But winning the commission was only the beginning of a baroque bureaucratic nightmare for SOM. For starters, Senator John Stennis of Mississippi decried the design as "modernistic and futuristic … New York City architecture." Representative John Fogarty, former president of the Rhode Island Bricklayers Union, attacked the extensive use of glass, unable "to find any trace of American heritage in the cold, impersonal, and mechanical appearance of these buildings."

On the Wings of Modernism is well-written, exhaustively researched, and thoroughly enjoyable. Woven among the political shenanigans is a terrific look at Eisenhower-era Modernism and a lot of interesting detail. Although the university-press packaging is disappointingly dowdy, Nauman's analysis makes it impossible for historians to dismiss "Alcoa U." as just another corporate campus. *William Morgan*

Building the Cold War: Hilton International Hotels and Modern Architecture, *by Annabel Jane Wharton. Chicago Press: University of Chicago, 2004, 272 pages, $28.*

In 1963, American hotelier Conrad Hilton declared the just-opened Berlin Hilton "a new weapon with which to fight Communism." The ungainly building, designed by Pereira & Luckman and insensitively dropped into the city's heart, would "develop a better understanding of the role played by West Berlin in furthering the hopes and objectives of the Free World," promised the hotel magnate.

Berlin is just one of several case histories in Annabel Wharton's *Building the Cold War*. A Duke University Byzantinist, Wharton was sparked to write this treatise on American cultural imperialism by Hilton's domination of Istanbul. Financed by Turkish government monies (and designed by SOM as a slicked-up Unité d'Habitation), the Istanbul Hilton was both an anti-Soviet symbol and a dramatic setting from which American tourists and businessmen could admire the city without interacting with it.

Continuing the arrogant pattern of ham-fisted and intrusive buildings, Hilton constructed similar-looking hotels in such cradles of civilization as Cairo, Athens, and Jerusalem. Appalled by the massive Cavaglieri Hilton in Rome, Florentines blocked construction of a proposed Hilton overlooking the Arno.

The most egregiously anti-urban example was the London Hilton. The vulgar skyscraper by a little-known developer's architect was the first building in London taller than St. Paul's Cathedral, begun almost 300 years earlier. It signaled a rush to transform the London skyline into something approximating Houston's.

Wharton provides additional historical information on the rise and fall of Hilton and on American hotel architecture in general. While one wishes university presses could find a way to afford better reproductions and stronger designers, *Building the Cold War* is a welcome study of a dark chapter of Modernism. *W.M.*

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Bruce Mau looks at the big picture and highlights some surprising findings

Exhibitions

By James S. Russell, AIA

Massive Change: The Future of Global Design. *Curated by Bruce Mau. At the Vancouver Art Gallery, Vancouver, B.C., through January 3, 2005.*

You can tell from the title of this show that the ambitions of Bruce Mau's latest enterprise are not small. Certainly, the notion that an exhibition can make understandable trends of mind-boggling complexity is a worthy one. This exhibition actually has higher aspirations: to show how design will manage massive change.

The design impresario behind *Zone* magazine, a collaborator with Frank Gehry on the graphics of the Disney Hall, and—most famously—coauthor with Rem Koolhaas of the doorstop-size *S, M, L, XL*, the 44-year-old Mau has rapidly become a design star. To make the exhibition's audacious case, the Vancouver Art Gallery, the city's chief art museum, has helped underwrite far more than an exhibition: It's a Mau-directed enterprise that includes a book (published by Phaidon Press), an ever-evolving Web site, radio programs, and an Institute Without Boundaries that puts students of the Toronto City College to work—in Mau's office.

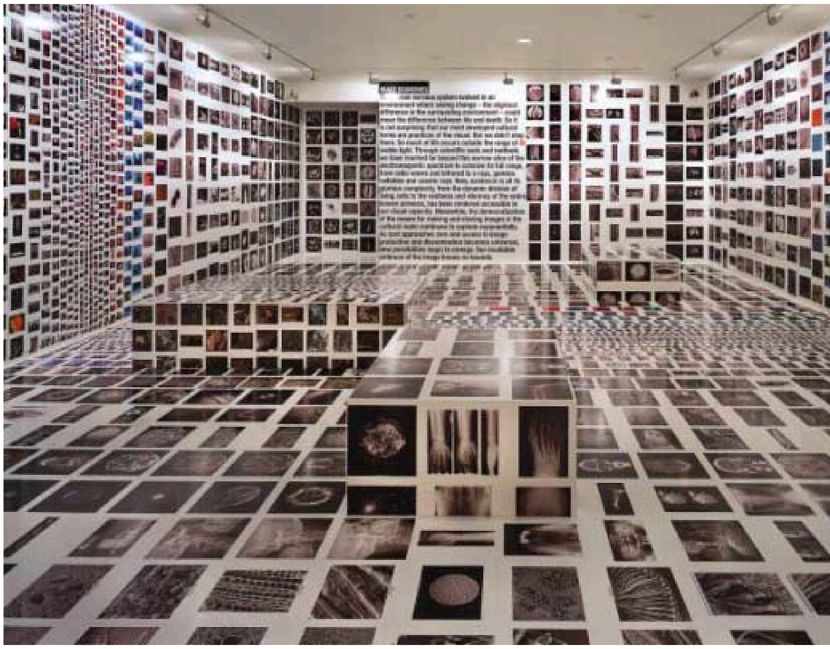
Design exhibitions typically parade a series of objects, each one expressing its utility and revealing the intelligence behind its creation (think iPod). Mau rightly sees this approach as limiting the role design can play. Instead, he presents, for example, a quite ordinary and inexpressive device about the size of a barbeque, lovingly mounted on a plinth. It turns out to be a kind of miracle of design, however, since it is capable of turning polluted water into drinking water for an entire third-world village.

Massive Change eschews what the gallery's senior curator, Bruce Grenville, aptly calls "the elegant remove" of typical high-design displays. The presentation is almost self-consciously undesigny. A small room documenting the evolution of a variety of computer-input devices, for example, puts a premium on prosaic engineering breakthroughs rather than the usual aestheticizing of function. The most elegant objects in the show are computer-generated replacement body parts.

At its best, the exhibition vastly expands conventional notions of the value of design. But the show swings wildly from moments of insight to collegiate earnestness. Among the biggest disappointments is the Urban Economies section (one of 11 big themes). A wide-screen film introduces the vast problems of world cities, then parades a familiar mix of idealist projects (Jaime Lerner's innovative transit solutions for Curitiba, Brazil; Chicago mayor Richard Daley's green-roof program; the work of William McDonough with Ford, among others). Worthy as this work is, it does not connect to the vastness of the problems portrayed. And it will all seem quite familiar to those who care about urban futures.

As Koolhaas tends to do, Mau draws broad implications from startling factoids. One that seems especially compelling, however, is the idea of each person's "ecological footprint," as formulated by E.O. Wilson, a biologist and Pulitzer Prize–winning author. For everyone to have as large a footprint as Americans have would demand three more planet earths, he claims. That's succinct. It suggests we can do something, not simply allow ourselves to remain passive bystanders to "massive change." Oddly, Mau doesn't map or otherwise give visual form to the human ecological footprint, which would have hugely aided Wilson's striking analysis.

The exhibition often does make compelling use of the graphic presentation of information—to powerfully summarize



A Wealth and Politics gallery (left) looks at the global distribution of resources; another gallery examines images (below).

PHOTOGRAPHY: © ROBERT KEZIERE/VANCOUVER ART GALLERY

data and make important comparisons. It is a use of design popularized by Edward R. Tufte in his classic book, *The Visual Display of Quantitative Information*.

A gallery devoted to global systems offers wondrous examples of the way visualization technology helps make understandable our world of data overload and mind-boggling complexity. Patterns of global air travel are displayed, for example. With thick, pulsing trunk lines between the wealthiest metropolitan areas and vast empty gaps (especially in Africa), it's a lesson in worldwide economic difference that can be comprehended in a second.

Hydrate or Die
Future Force Warrior

The Military gallery (above) presents technologies first developed for military uses.

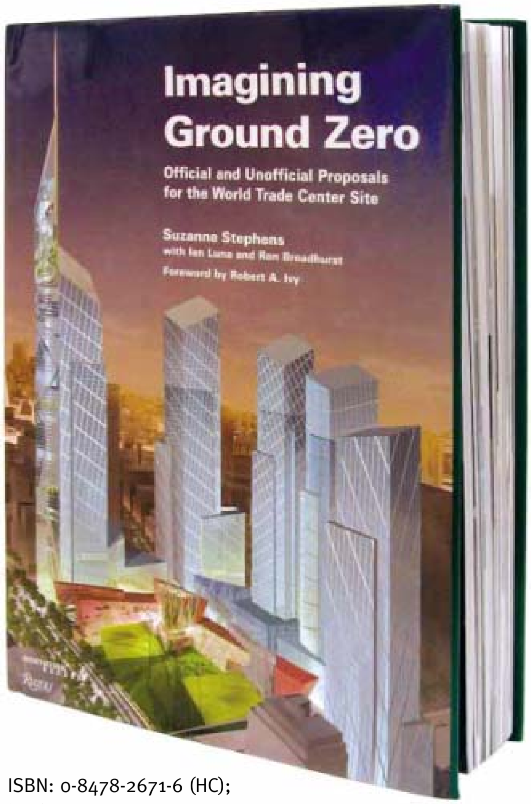
A few other similarly powerful images are on view. The first photo of earth shot from space reminds us that it singlehandedly changed the world's conception of itself. Images of the ominously expanding hole in the polar ozone layer helped change global behavior.

Two other galleries make good on the wild ambition of the exhibition's premise. One focuses on alternative forms of energy, including an unprepossessing $3 stove capable of transforming the lives of perhaps a billion of the world's poorest people because it burns firewood many times more efficiently than an ordinary stove. Arguments for the power of design could not be more "elegant."

You don't think of design when you consider the medium-security-prison look of the average Wal-Mart store. But a provocative vignette in the Market Economies section tells how Wal-Mart's system of purchasing and managing inventory is a product of the most obsessive and intricate design thinking. Another kiosk suggests how property ownership can be "redesigned" to help poor people build wealth. Design is now a chief endeavor of business, not a subset, said Mau in a recent interview.

In too many galleries, though, a firm curatorial hand seems lacking. A row of objects made from recycled materials sits in front of an artlessly constructed wall of garbage. A room devoted to new kinds of materials looks like a half-finished student project. As the exhibition strays farther from what design does best, it devolves into an earnest Epcotlike catalog of the manifest ways innovation makes our lives better.

For all its flaws, the show demonstrates Mau's willingness to cast off the distanced, ironic cool that has too long relegated design culture to boutique status. I'm happy to see Mau as an unabashed idealist. The exhibition and its related enterprises are supposed to evolve as they make their way to the Art Gallery of Ontario in Toronto, the Museum of Contemporary Art in Chicago, two cities each in Europe and Asia, and a possible final stop in New York over the next three years. With a more critical eye, *Massive Change* could be changed considerably for the better. ■


Imagining Ground Zero
Official and Unofficial Proposals for the World Trade Center Site
Suzanne Stephens
with Ian Luna and Ron Broadhurst
Foreword by Robert A. Ivy
Rizzoli

The comprehensive roundup of the inspiring visions for the World Trade Center Site

September 11, 2001 changed the public perception of architecture and urban design. Published jointly by Architectural Record and Rizzoli, **Imagining Ground Zero: Official and Unofficial Proposals for the World Trade Center Site** documents not only the master plan competition for lower Manhattan, won by Studio Daniel Libeskind and sponsored by the Lower Manhattan Development Corporation, but also proposals submitted by invitation of and published by *New York* magazine and *The New York Times Magazine*, as well as proposals from the exhibition at Max Protetch Gallery. Also included is a selection from the more than 5,000 schemes submitted to the competition for the World Trade Center Memorial.

This remarkable and authoritative survey features in depth the official scheme for the site, designed by David Childs of Skidmore, Owings & Merrill with the collaboration of Daniel Libeskind of Studio Daniel Libeskind; Reflecting Absence, the winning scheme for the memorial, designed by Michael Arad and Peter Walker; and the World Trade Center Transportation Hub, designed by Santiago Calatrava, DMJM + Harris, and STV Group.

With its exhaustive approach to these myriad voices in the discourse surrounding the World Trade Center site, **Imagining Ground Zero** is destined to become the canonical reference for this unprecedented moment in world architecture.

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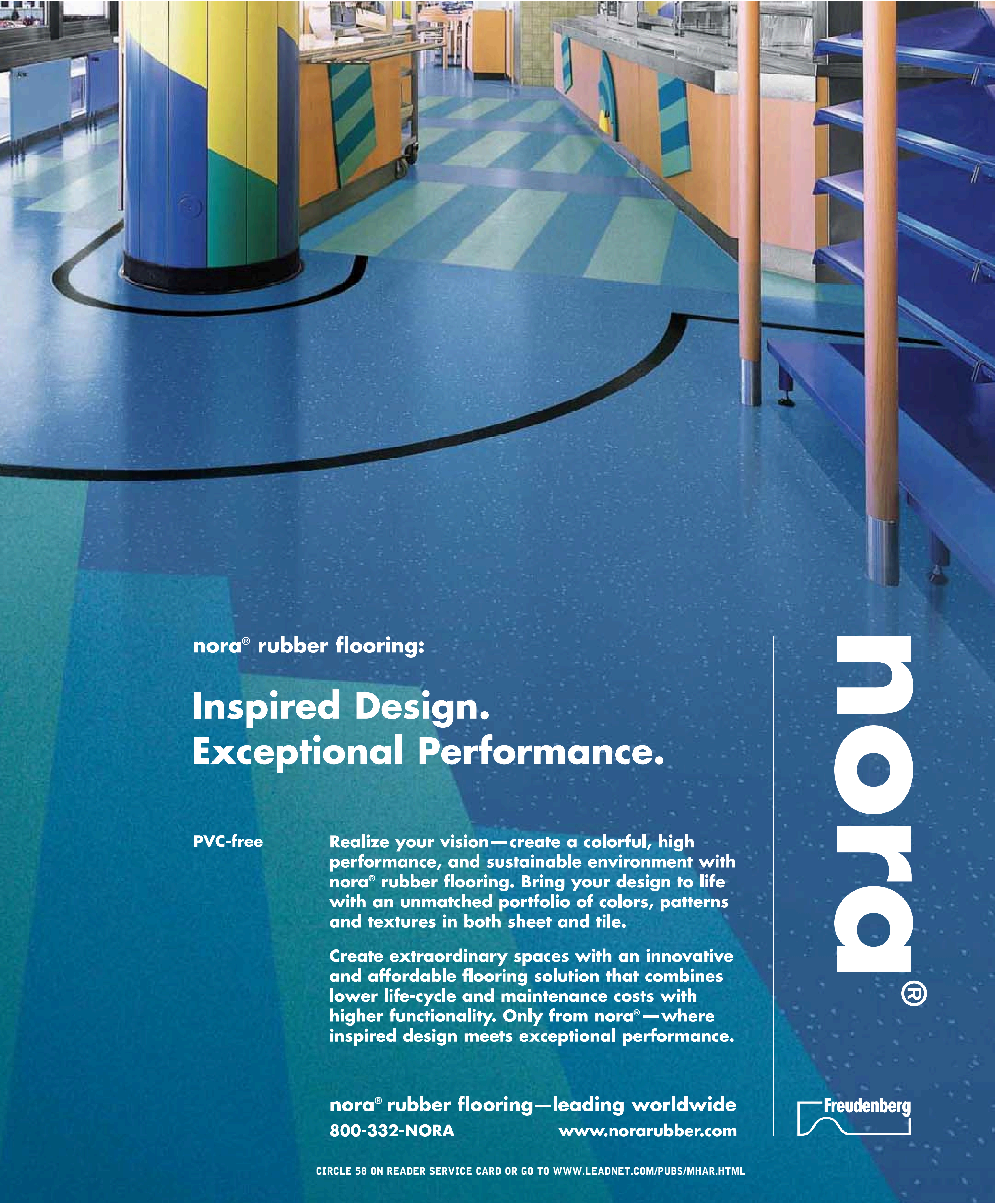

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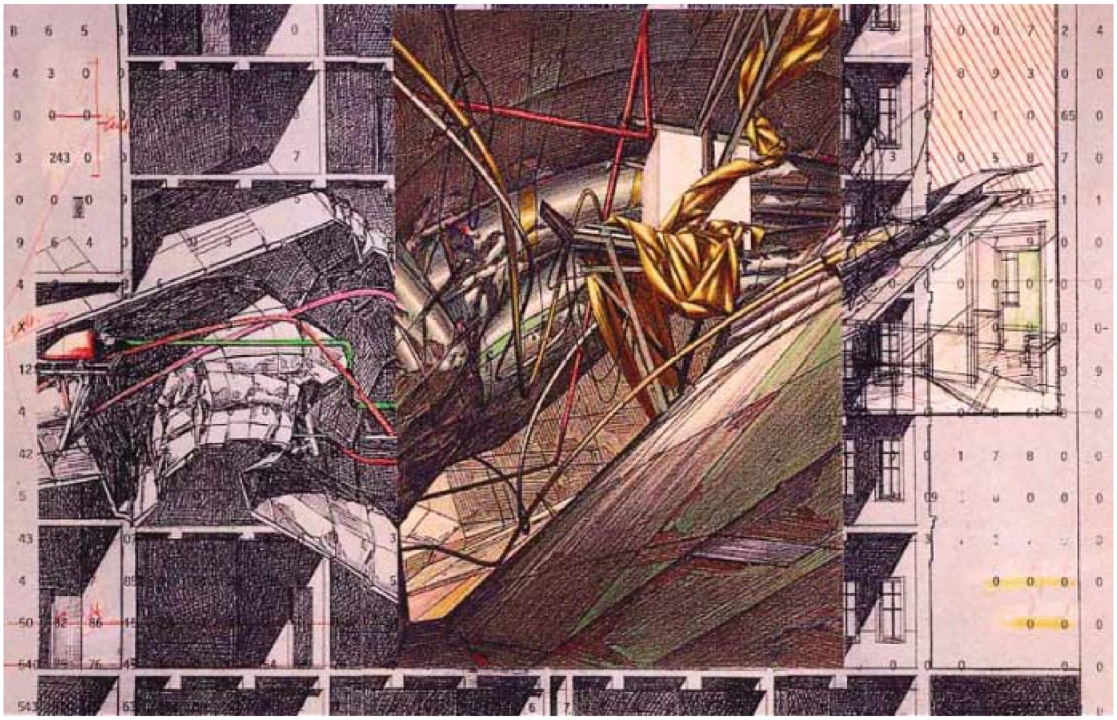
Beyond the line: Understanding the third dimension in the work of a master draftsman

Exhibitions

By Joseph Giovannini

Lebbeus Woods: Experimental Architecture. *Curated by Tracy Myers. At the Heinz Architectural Center at Carnegie Museum of Art, Pittsburgh, through January 16, 2005.*



In 2D: One of the drawings in the *Berlin Free Zone* series (above). In 3D: A model of a project for Zagreb, Croatia (below).

PHOTOGRAPHY: © COURTESY THE HEINZ ARCHITECTURAL CENTER, CARNEGIE MUSEUM OF ART

For over a generation, Lebbeus Woods's graphic ruminations—emotive, powerful, cryptic—have haunted the collective imagination of the architectural profession. Woods, who last practiced decades ago, left his day job to invent, on paper, oneiric worlds that make us wonder. His drawings open a space of thought in our eyes.

But the virtuosity of the drawings (in the *Aerial Paris* series of 1989, for example, he draws thin air so convincingly we can almost inhale it) prompts us to separate the draftsmanship from the vision, the dancer from the dance. However, to focus on the draftsmanship—the shadings, mood, evocation, and depth of space—is to relegate the architect to the status of a beauty trained to be blonde: all talent, little brain.

Tracy Myers, a curator at the Heinz Architectural Center, has mounted the largest American exhibition yet on Woods, and it performs the critical service of dwelling on the ideas in the work rather than letting technique and beauty define the accomplishment. Many of the displays are models in which Woods removes the draftsman's beguiling hand from the equation. Like Malevich's *Architektons*, the maquettes embody in three dimensions ideas developed in two. Without the graphic seduction, the ideas remain powerful and perhaps more persuasive because, even in miniature, they occupy real space.
A series of tower models, their prismatic volumes broken into fractal eruptions, are easily as compelling as any of the towers proposed by other architects for Ground Zero.

Woods is often called a visionary, but he does not speculate in an ivory tower. Despite the meditative quality of drawings worthy of a monk, Woods is an activist; there is a narrative in the abstract beauty of his vision, and it reveals an existentialist's engagement with the world. The drawings emerge, finally, as heuristic provocations, meant to ask questions, stimulate dialogue, and confront hard realities.

Once an illustrator of an imaginary mechanical future in the Jules Vernes tradition, Woods turned a corner in 1987 when, during a trip to São Paulo, the favelas politicized him. The squatters' settlements motivated him to use architecture as a corrective agent and social critique. Architects, he felt, were obligated to peer directly into the crisis and propose solutions. Woods embarked on a form of intellectual activism through drawing.

In a frieze ringing one of the galleries, he imagines large environmental capsules parachuted into Berlin's traditional city fabric after

Joseph Giovannini is an architect based in New York and L.A. and the architecture critic for New York *magazine.*

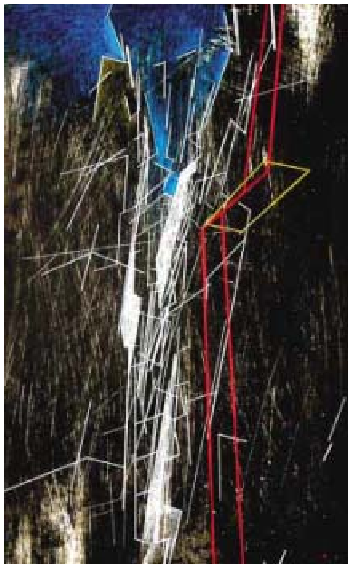
the Wall came down, opening the capital to a new order of habitation.

At risk to his own life, he visited Sarajevo during the Serbian bombardments in the 1990s and responded to the destruction by proposing a process of architectural healing. We see partially restored buildings grafted with Woods's quasi-organic, quasi-mechanical fuselages, conceived as regenerative urban tissue. His proposal does not erase the destruction with new construction, nor does it fully restore the building to a prewar state, as though nothing happened. His grafts acknowledge the war, absorbing its consequences in a wheel of ongoing construction. War is embraced as part of life's cycle. The vision is realistic, optimistic, and wise.

Scored with mysterious scriblings, the drawings at times recall Leonardo's notebooks, but they are topical and relevant. Their freshness comes, in part, from research Woods has carried out by isolating architectural subjects, as a scientist would in a controlled experiment. An experimental theorist, he explores with his pencil what buildings would be like in, for example, an antigravitational state or the flux of an earthquake. He distills discoveries in speculative drawings but applies results in crisis situations.

Inviting interpretation

The sum of the speculations yields an architectural approach that challenges the Euclidean world of controlling geometries that fix space, in favor of fluid forms and spaces whose ambiguities invite interpretation. The "high houses" that he draws floating over Zagreb don't have rooms programmed specifically for sleeping or eating, but are open, multilevel, multidimensional lofts: "free spaces" that invite occupants to project their own use.



Woods envisions a tower always under construction at Ground Zero.

Architecture is one of the slower arts, and the virtue of drawing theory rather than construction documents is that Woods moves through issues faster than an architect slowed by a building process. Still, architecture is a spatial discipline, and in this show Woods brings the ideas off the walls into real space. *The Tangle*, a site installation made of bent aluminum rods, luminescent in a pitch-black gallery, is a line drawing in three dimensions whose dense complexity allows only visual penetration and mental entry. The straight, axial corridor leading to the exhibition is challenged by Woods's leaning, floor-to-ceiling panels, covered with enlargements of his drawings. The panels and their graphics transform the corridor into a stroll through uncertainty, a perfect introduction to the work. The enlargements project us into the details of geometries recalling those in El Lissitzky's work and push us to occupy elusive and illusory spaces whose ambiguities can be interpreted in multiple ways.

This is an important show by one of architecture's most probing and original figures, and it is long overdue. It demonstrates that you can't separate Woods's drawing from the vision. The two are simultaneously and mutually causal. ■

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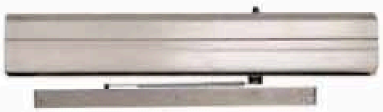

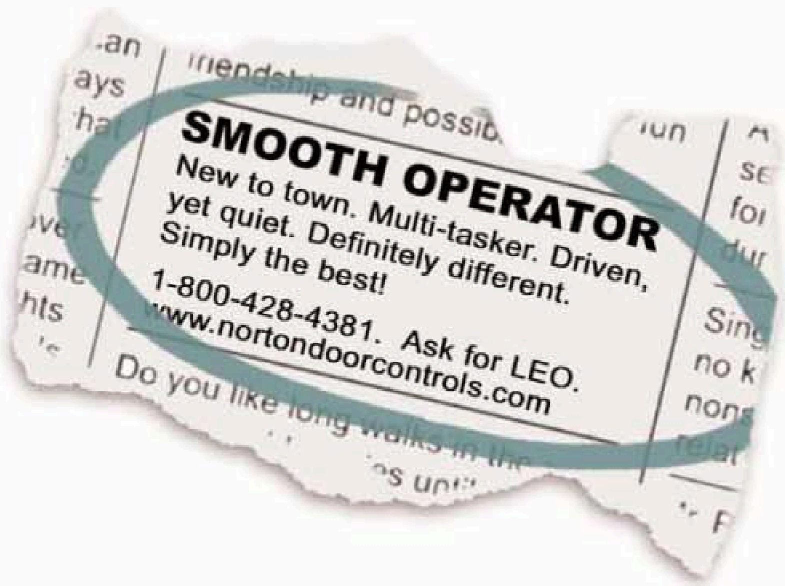

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On the Road to Venice: 9th Architecture Biennale

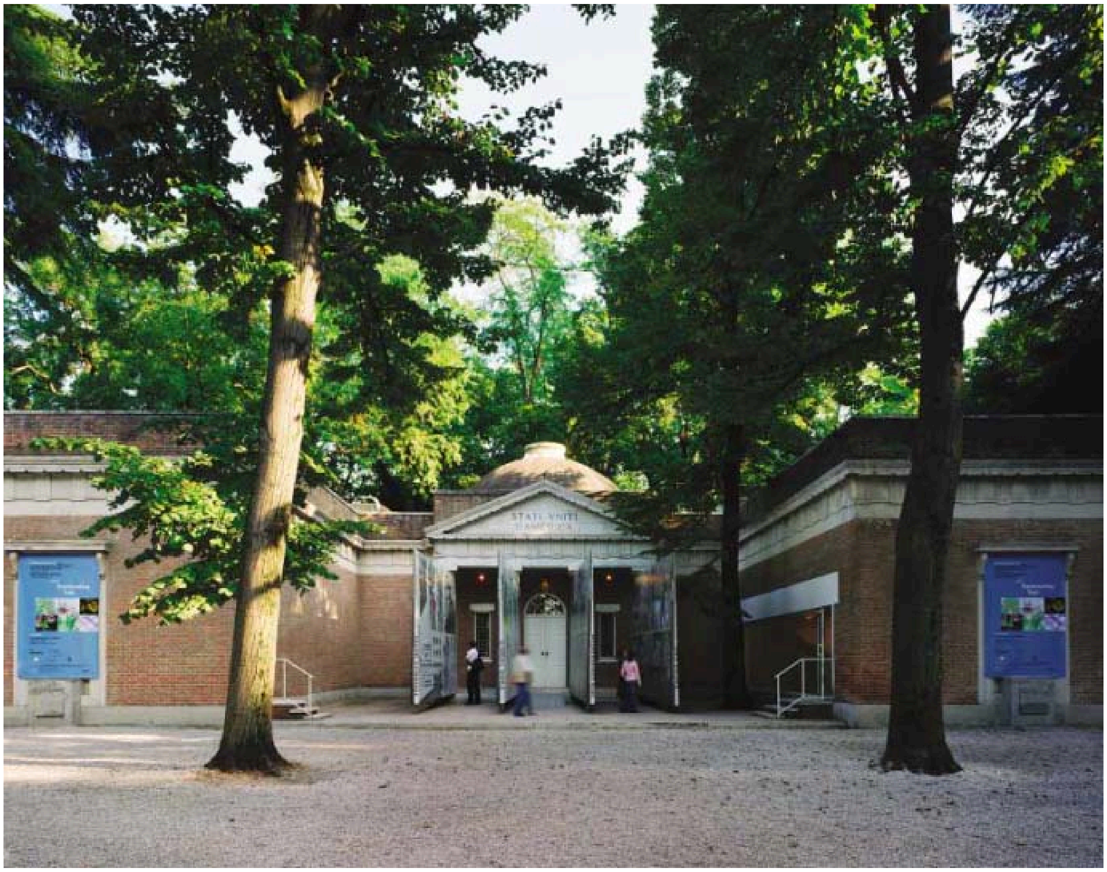
Exhibitions

By Robert Ivy, FAIA

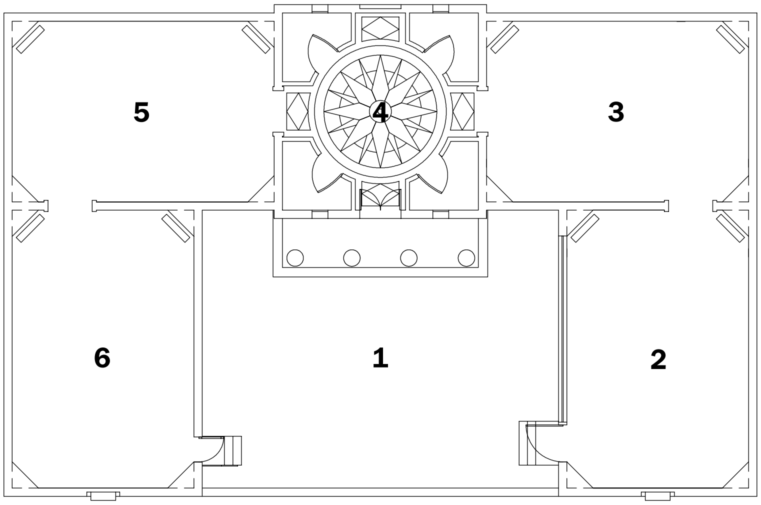
To the list of creative folk captivated by Venice, Italy—from Tintoretto to Thomas Mann—add the modest staff of ARCHITECTURAL RECORD. We were drawn there, not as artists, but in the unusual role of curators for the U.S. Pavilion at the 9th International Architecture Biennale held there. Invited by the Bureau of Educational and Cultural Affairs of the U.S. Department of State, we oversaw an architectural show that opened September 12 and is closing on November 7. The location was sublime: The U.S. Pavilion, which the State Department leases from the Peggy Guggenheim Collection in Venice, is one of 33 such pavilions in the Giardini di Castello, a serendipitous public garden accustomed to alternating annual presentations of cutting-edge art and architecture. Nearby, a massive exhibition of international architecture filled the cavernous 16th-century Corderie of the Arsenale, a former shipbuilding yard.

Who could turn down the opportunity? We had gotten hooked on the Biennale before in a more indirect manner: In 2002, I had been named the U.S. Commissioner for *The World Trade Center: Past, Present, and Future*, a two-part exhibition, with one part mounted by Max Protetch (for which RECORD had been an adviser), and the other comprising photographs by Joel Meyerowitz. This time, I would again be the U.S. Commissioner for the pavilion, but RECORD would put on the show.

In accordance with the overall theme of this year's Biennale,



The Palladian-style U.S. Pavilion in the Giardini di Castello was designed by Delano and Aldrich in 1930.



1. *Lewis.Tsurumaki.Lewis: Parking Garage*
2. *Reiser + Umemoto: Highway Interchange*
3. *Predock_Frane: Spiritual Space*
4. *Studio/Gang: Sports Stadium*
5. *Kolatan/MacDonald: Apartment Tower*
6. *George Yu: Shopping Center*

PHOTOGRAPHY: ©ELLIOTT KAUFMAN

organized by Kurt Forster (page 110) and entitled *Metamorph*, we decided to explore the transformations taking place in typically American building types. Call them mundane, call them ubiquitous—they fill our world, and they deserve fresh thinking. Then we selected six young, innovative architects, who had been researching particular programmatic expressions, and who had appeared in our December Design Vanguard issues in the previous five years. We asked them to join in, and all immediately said yes. We then matched them up with ordinary, iconic building types where their research could inform future design: The shopping center went to the Los Angeles–based firm, George Yu Architects; the parking garage to the New York firm of Lewis.Tsurumaki.Lewis; the highway interchange to Reiser + Umemoto; the skyscraper (in its specifically residential form) to Kolatan/MacDonald Studio in New York; the sports stadium to Studio/Gang of Chicago; and the spiritual or contemplative space to Predock_Frane of Los Angeles.

At the opening of *Transcending Type* at the U.S. Pavilion on September 10, Robert Ivy (middle, at left) talked with the Guggenheim's Thomas Krens (far left), and the State Department's Patricia Harrison. George Yu shows Daniel Libeskind his project (above).

In addition, we asked the teams to design and install their own rooms (or, in the case of Lewis.Tsurumaki.Lewis, the courtyard) at the U.S. Pavilion, and to be ambitious in their presentations (even if we did not have the funds to back up that desire). We did not want to create a routine exhibition, like a walk-in book, with only drawings and photographs on the wall, supplemented with architectural models nearby. Instead, we sought an interior sense, the experience of being inside architecture. Each team proposed a radically refreshing and unexpected solution to its assignment. Yet a concern for a connection to the social fabric and to the landscape consistently showed up in each of the schemes. Whether the topic was a shopping center or parking garage, the architects thought in a larger, more holistic manner than the simple assertion of a formal solution. In these schemes, type relates to more than construction: It proposes that human life is multidimensional and that physical solutions can reflect that diversity of expression.

Next, RECORD's editorial-team-turned-curators, led by Cliff Pearson and Suzanne Stephens, began working with the six architectural firms on the conceptual development of their schemes, as well as the arduous task of fund-raising. We were fortunate in having Laura Viscusi, RECORD's associate publisher, and Bill Hague, account manager for McGraw-Hill Construction, onboard to convince corporate sponsors that this was a worthwhile cause. Meanwhile, Pearson and Stephens, aided by the Architectural League of New York, persuaded leading established architectural firms in this country to "adopt an architect" by giving them serious money for their installations. Through the efforts of several of the young architects, certain private donors gave, as well. In fact, a couple people just called up and offered to contribute!

The planning of the installation and logistics of shipping to Venice (think canal delivery) was arduous: There was no time to fabricate the work in Italy, owing to the country's practice of taking summer vacation in August. But we were saved by the pro bono efforts of the multidimensional Christian Bruun. Trained as an architect, Bruun acted officially as our curatorial consultant. In this capacity he advised both RECORD and the architects while coordinating the myriad logistical details with the special projects manager for the Peggy Guggenheim Collection in Venice, Chiara Barbieri. Bruun's extensive knowledge of digital techniques, exhibition fabrication, and his present work directing and producing feature films in New York and Los Angeles added an indispensable level of expertise to the visual realization of *Transcending Type*.

Despite last-minute panic attacks, we got it done. We first celebrated with an evening bash on September 9 at the Peggy Guggenheim museum, where we publicly thanked Phil Bernstein, the vice president of building solutions for our lead sponsor, Autodesk, which provided major monetary support as well as the software for the young architects. But the pavilion crystallized into a unified whole at the press conference and the formal opening on September 10. On that balmy afternoon, attended by a robust press corps, the U.S. Undersecretary for Public Policy, Patricia Harrison, declared the pavilion open. We sighed collectively (especially the State Department's Brian Sexton, who, as Senior Adviser/Special Coordinator for Culture, had collaborated closely with us). Thomas Krens, director of the Guggenheim Foundation, spoke, as did the director of the Peggy Guggenheim Collection, Venice, Philip Rylands. After another reception laced with Montenidoli wine, architect Daniel

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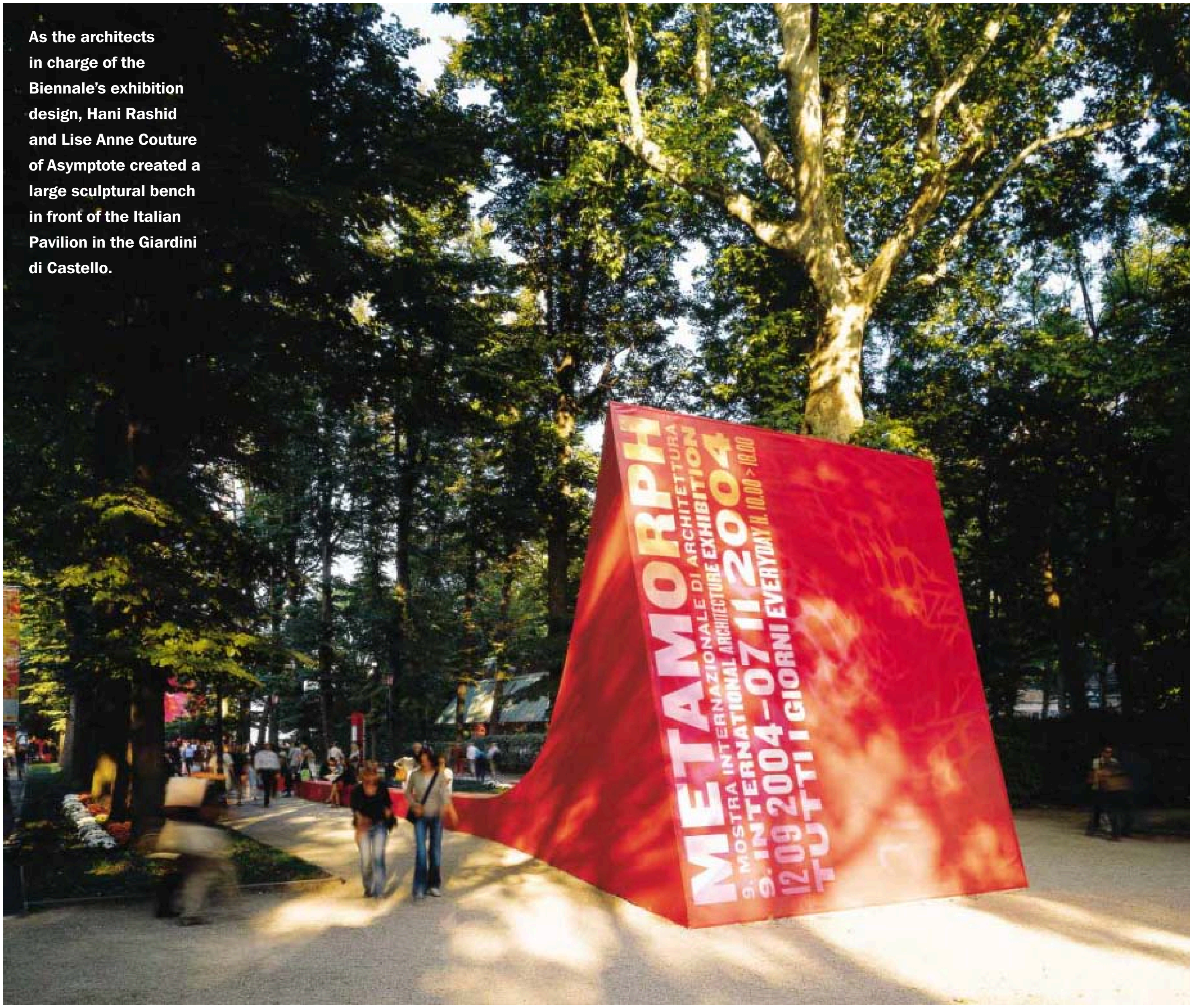
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As the architects in charge of the Biennale's exhibition design, Hani Rashid and Lise Anne Couture of Asymptote created a large sculptural bench in front of the Italian Pavilion in the Giardini di Castello.

Libeskind, the first U.S. Cultural Ambassador for Architecture, joined me in a public interview. Then he genially took the press on a tour of the U.S. Pavilion, enthusiastically discoursing on the next generation's projects.

All in all, the collective efforts worked. Today, we intend to bring *Transcending Type* to the United States and are actively engaged in discussions with several exhibition venues. The show is worth it, as it illustrates architecture's transformative power, whether reached through tectonics, scientific exploration, or sheer imagination. Despite numerous precautionary studies in a wide range of disciplines, society continues to cannibalize the environment at a rapid pace, with architectural projects frequently guided only by imperatives of economic return and simplicity of execution. Too often they fail to respond to the complexities and nuances of the real world. The exhibition *Transcending Type* at the U.S. Pavilion suggests an alternative. Venice, blissfully, continues to nurture the soul. ■

Exhibition presenters: *ARCHITECTURAL RECORD and the Bureau of Educational and Cultural Affairs of the U.S. Department of State (with Brian Sexton, Special Coordinator for Culture); in cooperation with the Peggy Guggenheim Collection (Chiara Barbieri, Special Projects Manager) and the U.S. Embassy Rome*

Exhibition organizers: *ARCHITECTURAL RECORD—Robert A. Ivy, editor in chief and Commissioner, U.S. Pavilion; Clifford Pearson and Suzanne Stephens, Deputy Commissioners; Sarah Amelar, William Weathersby Jr., Sam Lubell, Jane F. Kolleeny, Rita F. Catinella, Audrey Beaton, Nick Olsen, RECORD's editorial project team*

Curatorial consultant: *Christian Bruun*

Graphics: *Anna Egger-Schlesinger*

Corporate sponsorships: *Laura Viscusi*

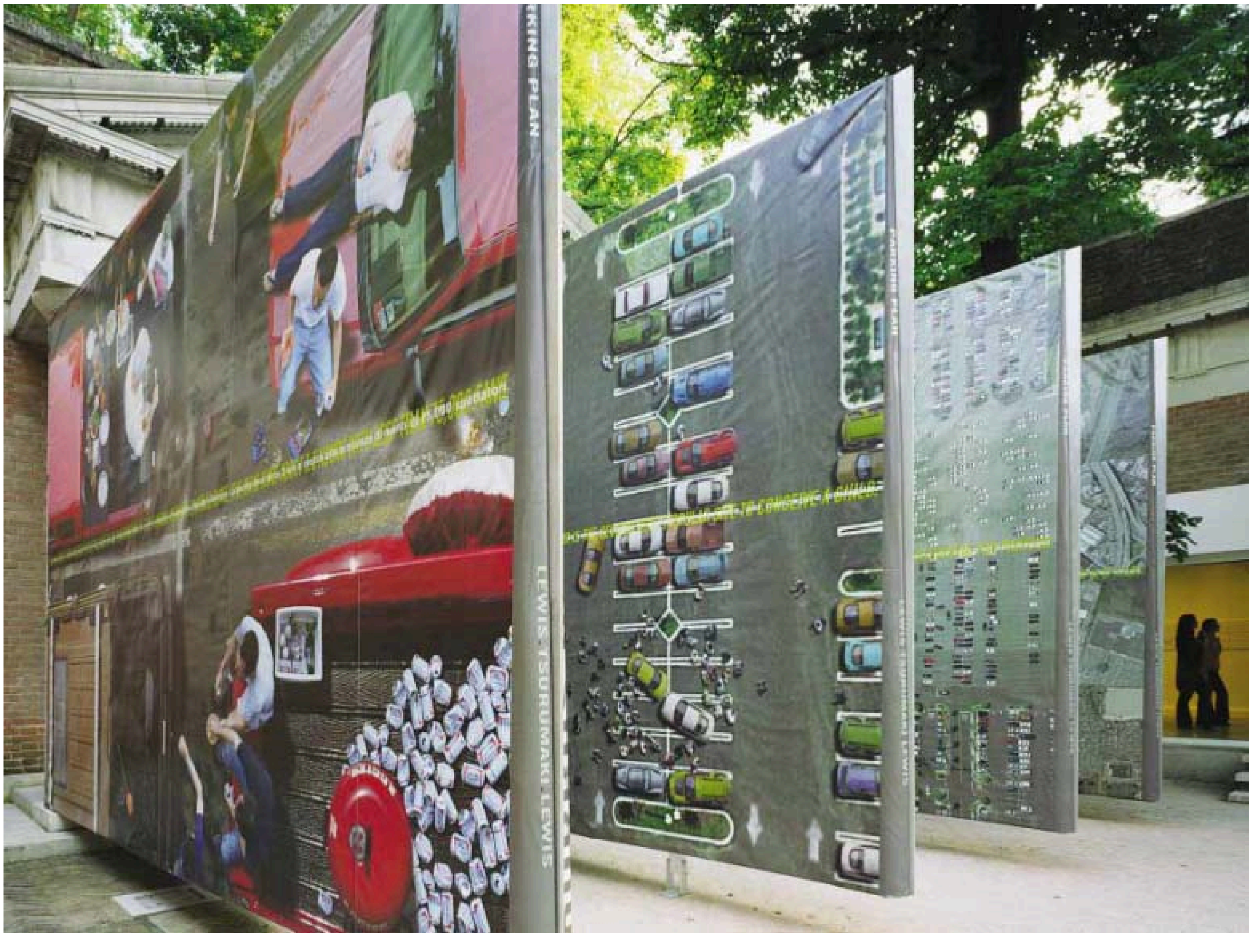
For more information on this project, go to Projects at **www.architecturalrecord.com**.

U.S. Pavilion

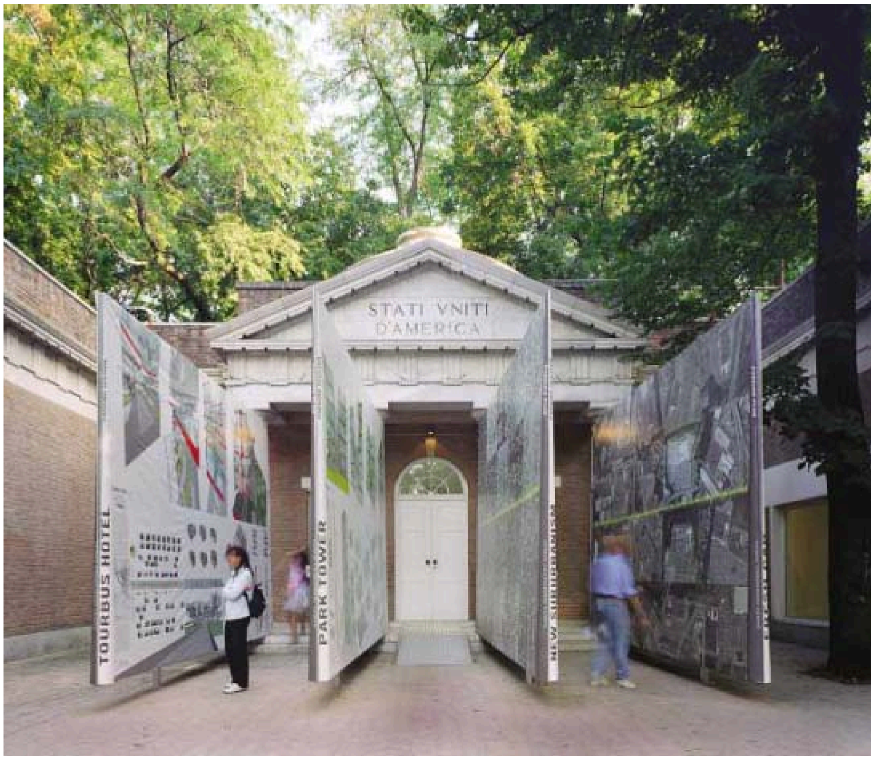
Lewis.Tsurumaki.Lewis Parking Garage

In response to the ubiquitous problem of parking cars in the America, Lewis.Tsurumaki.Lewis (LTL) has been researching solutions to the design of parking structures for several years. For the exhibition *Transcending Type* at the U.S. Pavilion, the architects installed four large banners on aluminum frames in the courtyard, attached at one end to the Classical columns of the pavilion's entrance porch. These vinyl billboards, each printed on two sides (except one side that was encrusted with packets of Car-Freshner) depict visual analyses of existing parking problems (and pleasures) on one side, with the architects' proposed solutions on the other. The firm's three proposals transforming the parking garage building type combines parking with retail, commercial, and residential components. One conceives a drive-up skyscraper, called *Park Tower*, where a double-helical roadway weaves parking surface with retail, office, and residential uses. Another parking scheme, *New Suburbanism*, intersects parking structures with athletic fields, and overlaps suburban houses with big-box stores. Another, *TourBus Hotel*, combines parking and hotel for ease of roadway tourism.

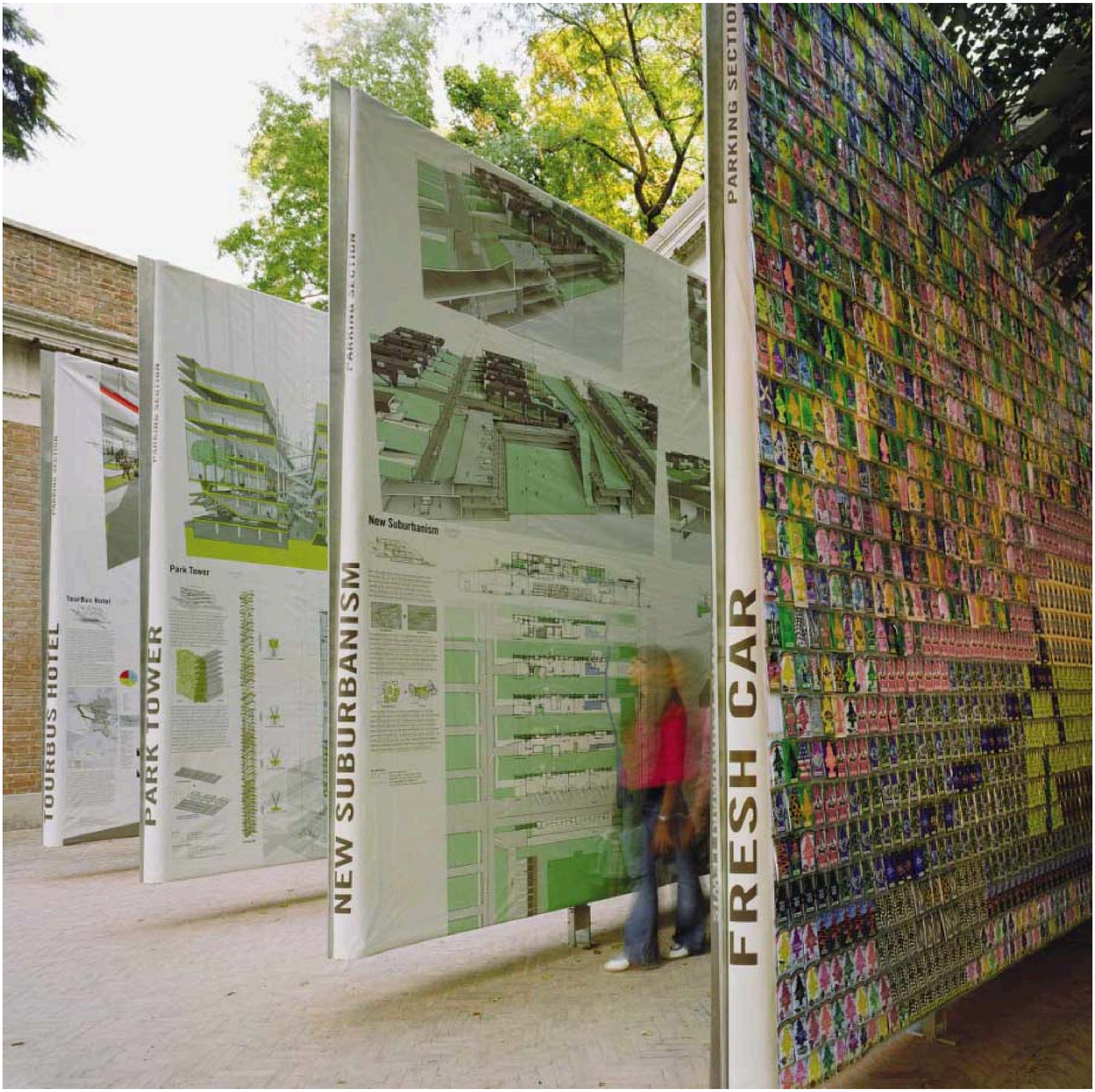
Lewis.Tsurumaki.Lewis is a New York–based firm founded in 1993 by Paul Lewis, AIA, Marc Tsurumaki, and David J. Lewis. Featured in the 2000 National Design Triennial at Cooper-Hewitt, National Design Museum in New York City; the New York Architectural League's *Emerging Voices*, in 2002; and Design Vanguard 2000 [RECORD, December 2000, page 116], LTL recently completed three restaurants in New York. Paul Lewis is the director of graduate studies at Princeton's School of Architecture; Marc Tsurumaki teaches at Columbia University and at Parsons; and David J. Lewis is the director of the M.Arch. program at Parsons.



Architects: *Lewis.Tsurumaki.Lewis—Paul Lewis, AIA, Marc Tsurumaki, David J. Lewis, principals*
Installation team: *Alan Smart, James Bennett, Hilary Zaic, Maya Galbis, Alex Terzich, Mimi Shin*
***Park Tower* team:** *Alex Terzich, Michael Tyre, Israel Kandarian, Hye-Young Chung, Hilary Zaic, Maya Galbis*
***New Suburbanism* team:** *Michael Tyre, Jason Tang*
***TourBus Hotel* team:** *Hye-Young Chung, Jake Nishimura, Ade Herkarisma, David Takacs, Eric Samuels, Jamie Montgomery, Larry Cohn (supported in part by Mercedes T. Bass Rome Prize in Architecture, the American Academy in Rome)*
***Fresh Car* team:** *Maya Galbis, Hilary Zaic*
Project sponsor: *Car-Freshner Corporation/Tavola/Wunder-Baum*
Software: *Autodesk*



In the courtyard of the U.S. Pavilion, architects Lewis.Tsurumaki.Lewis installed four double-sided billboard elements (opposite, bottom), which were fastened at one end to the columns of the pavilion's Classical-style portico. Analyses of contemporary parking situations were displayed on one side of the vinyl-printed screens (opposite, top), while solutions devised by the firm were printed on the backs (below). A fourth side (left) was enlivened by a wall of Car-Freshner packets.


PARKING SECTION
FRESH CAR
NEW SUBURBANISM
New Suburbanism
PARKING SECTION
PARK TOWER
Park Tower
PARKING SECTION
TOURBUS HOTEL
TourBus Hotel

PHOTOGRAPHY: © ELLIOTT KAUFMAN (OPPOSITE AND THIS PAGE, BOTTOM); ANNA SCHLESINGER (TOP)

Reiser + Umemoto

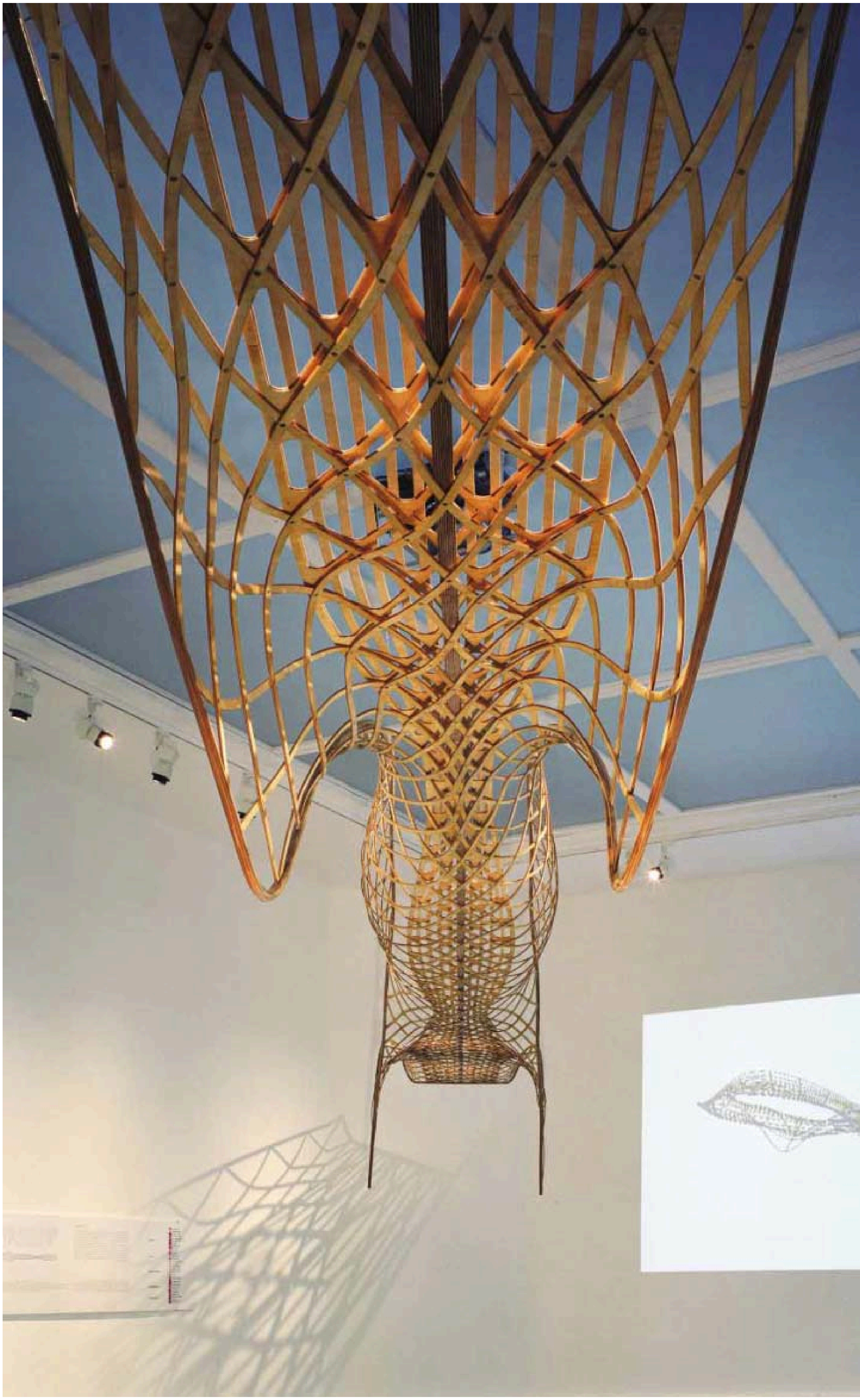
Highway Interchange

Reiser + Umemoto has been investigating modes of transit for several years, including vertical airports in RECORD's Millennium issue [December 1999, page 118]. For *Transcending Types*, the firm concentrated on the generic highway interchange and how it could engage the space between the road and adjacent territories. The architects' proposals are graduated in scale from the footbridge to a regional infrastructure. In the pavilion, a 33-foot-long suspended plywood model of a bridge dominated one room. (For details on its fabrication, see page 106.) The highway interchange proposed would be developed to incorporate residential development, pedestrian circulation, and landscaping, usually lacking in infrastructural projects.

This project extends the research the firm is undertaking with Arup for its Alishan Tourist Route in Taiwan, which will include a glue-laminated timber-boardwalk-like structure, along with other facilities, to be built in 2005.

Jesse Reiser, AIA, and Nanako Umemoto have practiced in New York as Reiser + Umemoto RUR since 1986. Their work covers a range of scales, from furniture to infrastructure. Reiser teaches at Princeton University and Umemoto at the University of Pennsylvania.

Architects: *Reiser + Umemoto—Jesse Reiser, AIA, Nanako Umemoto, principals*
Bridge team: *Jason Scroggin, Eva Perez de Vega Steele, Michael Young*
Film *Ecstatic Planning*: *Mitsuhisa Matsunaga, Jonathan Solomon, Sean Daly (narration)*
Structural engineer: *Arup & Partners, London (Charles Walker, Annie Chung, Florian Gauss)*
Fabrication of bridge: *Cowley Structural Timberwork*
Bridge sponsor: *Craig Robins/Dacra Development*
Software: *Autodesk*



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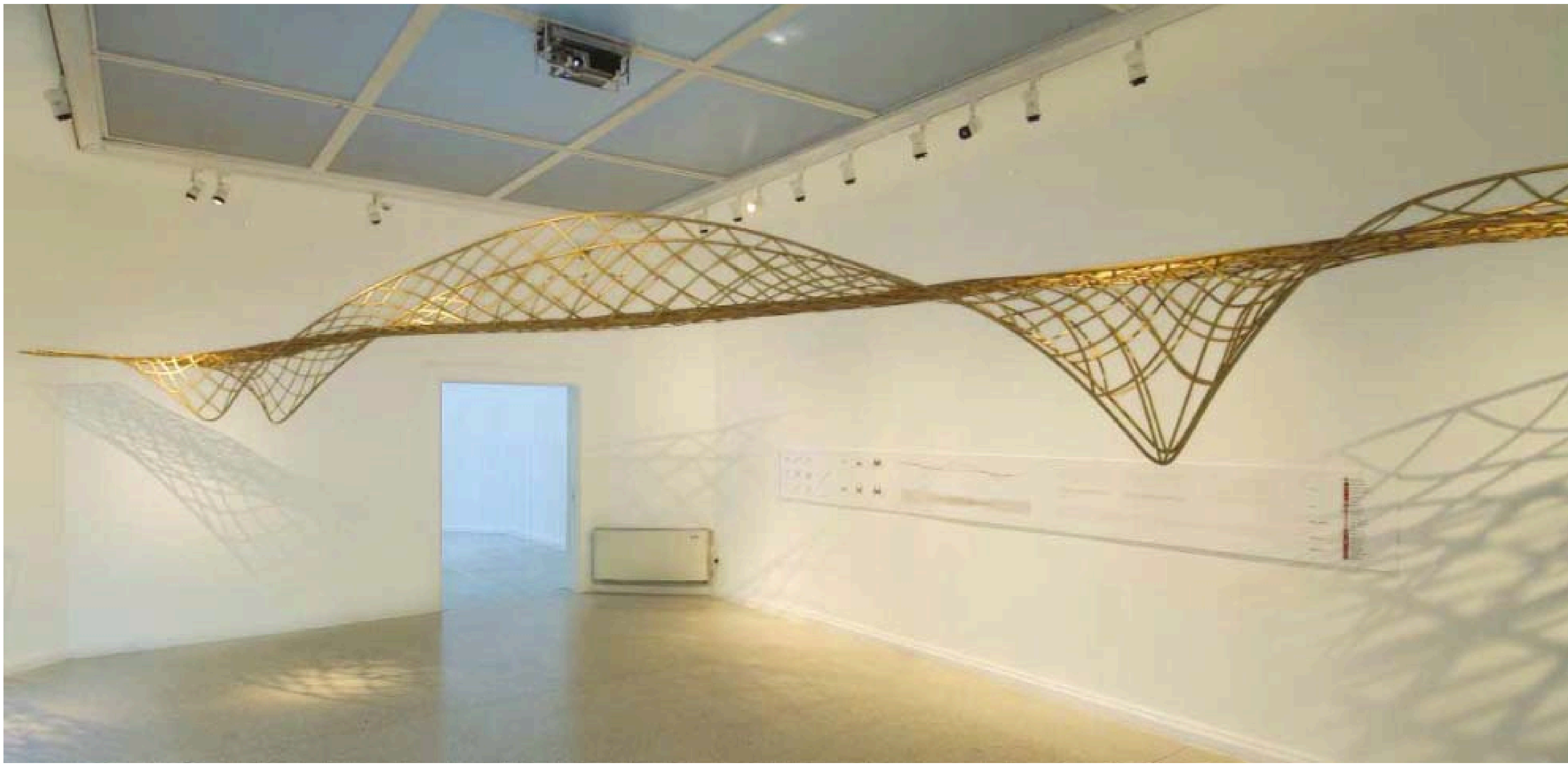


Stretching across the exhibition gallery in the U.S. Pavilion, Reiser + Umemoto's 33-foot-long bent-plywood model limns the basic form of a glue-laminated bridge/highway interchange. As the drawings and a film in the gallery further explain, the firm seeks to incorporate residential development, pedestrian circulation, and landscaping into an urbanistic infrastructure.

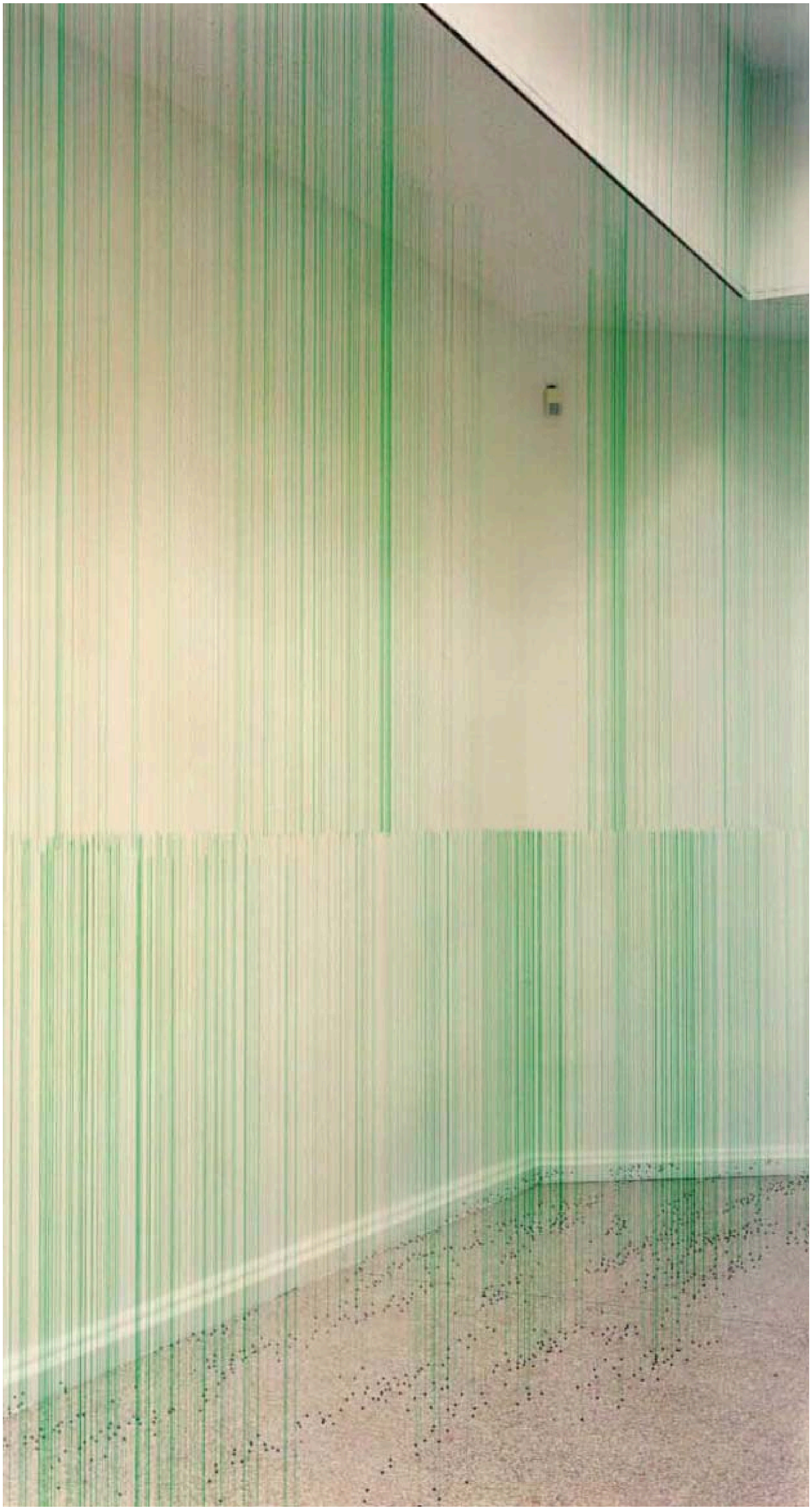
Predock_Frane
Spiritual Space

As its project for the *Transcending Type* exhibition, Predock_Frane addressed the design of the spiritual or contemplative space by literally creating an environment they called *Acqua Alta*.

The installation was conceived as a "pixelated" field of 5,000 nearly invisible nylon filaments to evoke the high-tide water patterns in Venice, and to refer as well to the complex patterns of piers that underpin the city. Hung from the ceiling and weighted with lead balls, the 17 miles of single-string filaments painstakingly hand-stained a blue-green color evoked the high-tide water as well as the horizon line where water meets air. The architects saw this interiorized landscape as analogous to the natural and evolutionary forces that shape this city. The luminous space, difficult to capture on film, attracted large numbers of visitors passing through it. Sometimes the close encounters caused the filaments to tangle, and visitors had to be restricted.

Established in Santa Monica, California, in 2000, Predock_Frane was featured in RECORD's Design Vanguard [December 2002, page 130]. Principal Hadrian Predock has already been getting the acclaim known to his father, Antoine. The firm recently won a national AIA Honor Award for the Center of Gravity Foundation Hall—a Zen Buddhist monastery in northern New Mexico. Current projects include the Central California Museum of History in Fresno, and a Kidspace inside the J. Paul Getty Museum in Los Angeles.

Architect: *Predock_Frane Architects—Hadrian Predock and John Frane, principals*
Project team: *Maximiliano Frixione, Elizabeth Grace, Morgan MacLean*
Software: *Autodesk*



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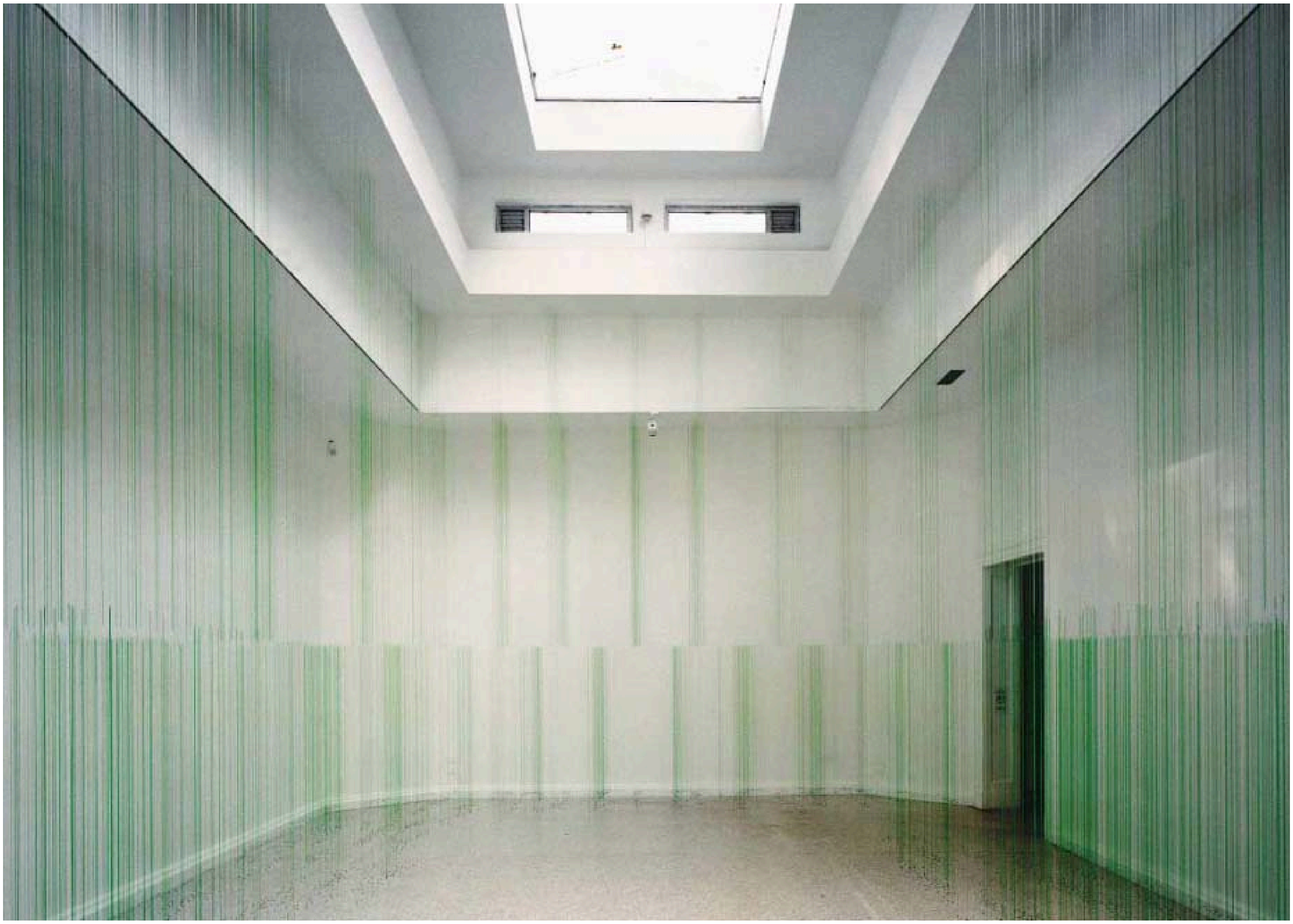
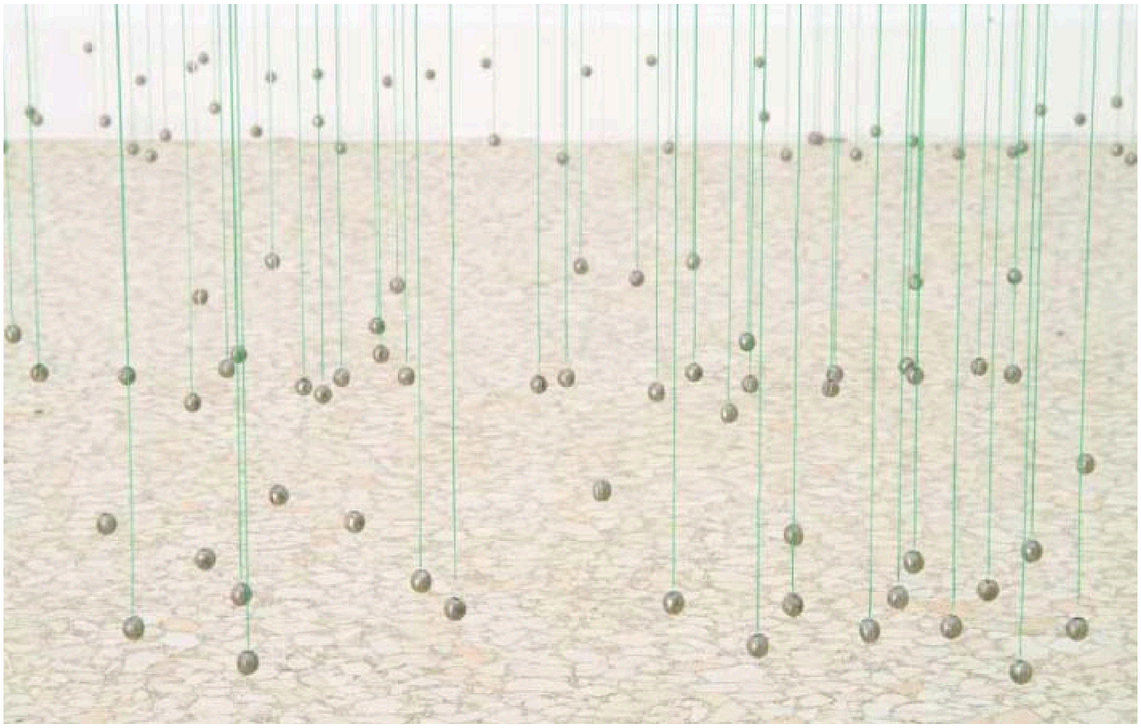


In order to conjure up a spiritual or contemplative space, Hadrian Predock and John Frane designed an actual room installation. Five thousand nylon filaments weighted by lead balls were hand-tinted shades of blue-green, referring to Venice's tidal waters. Hence the installation is entitled *Acqua Alta*.

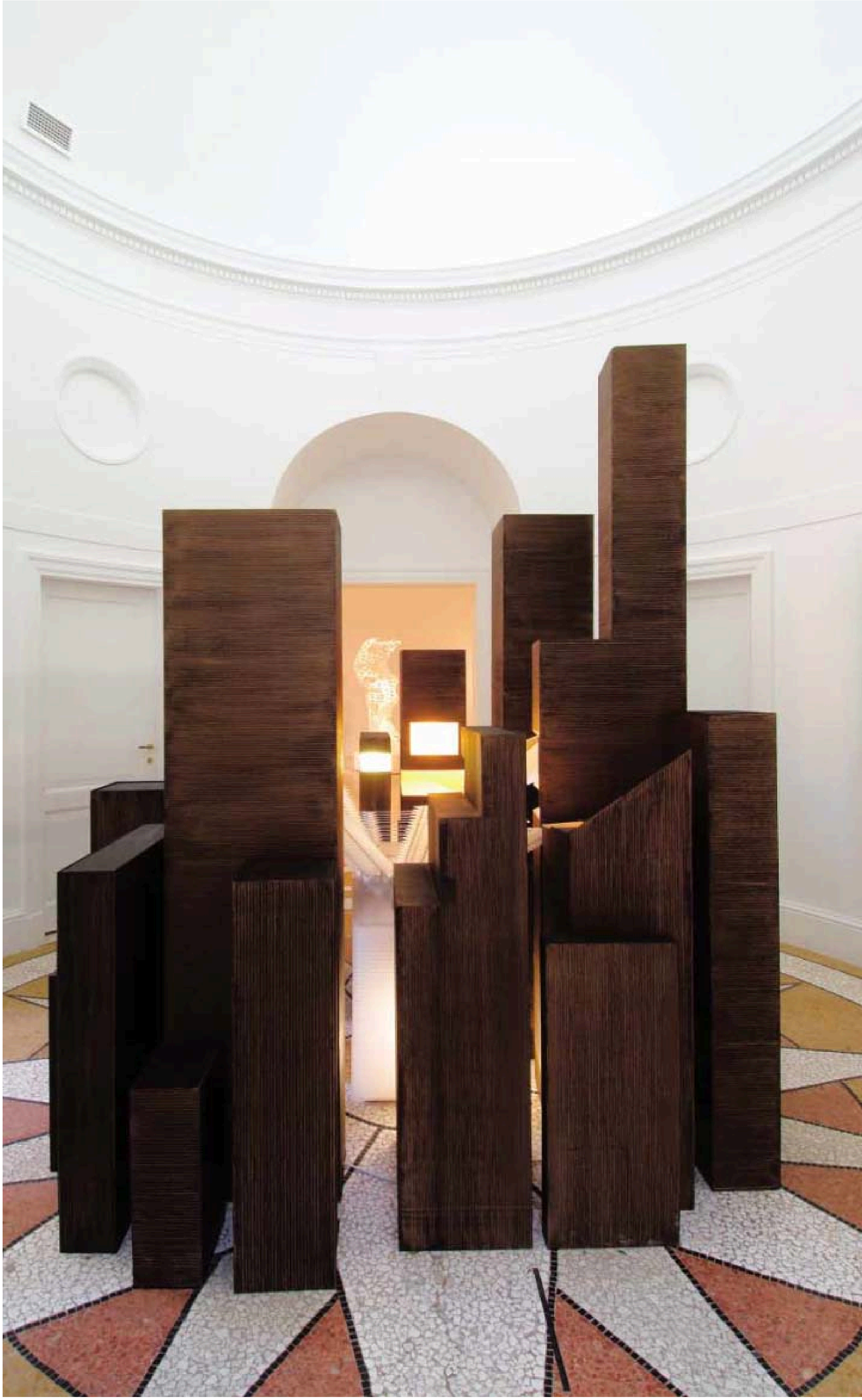


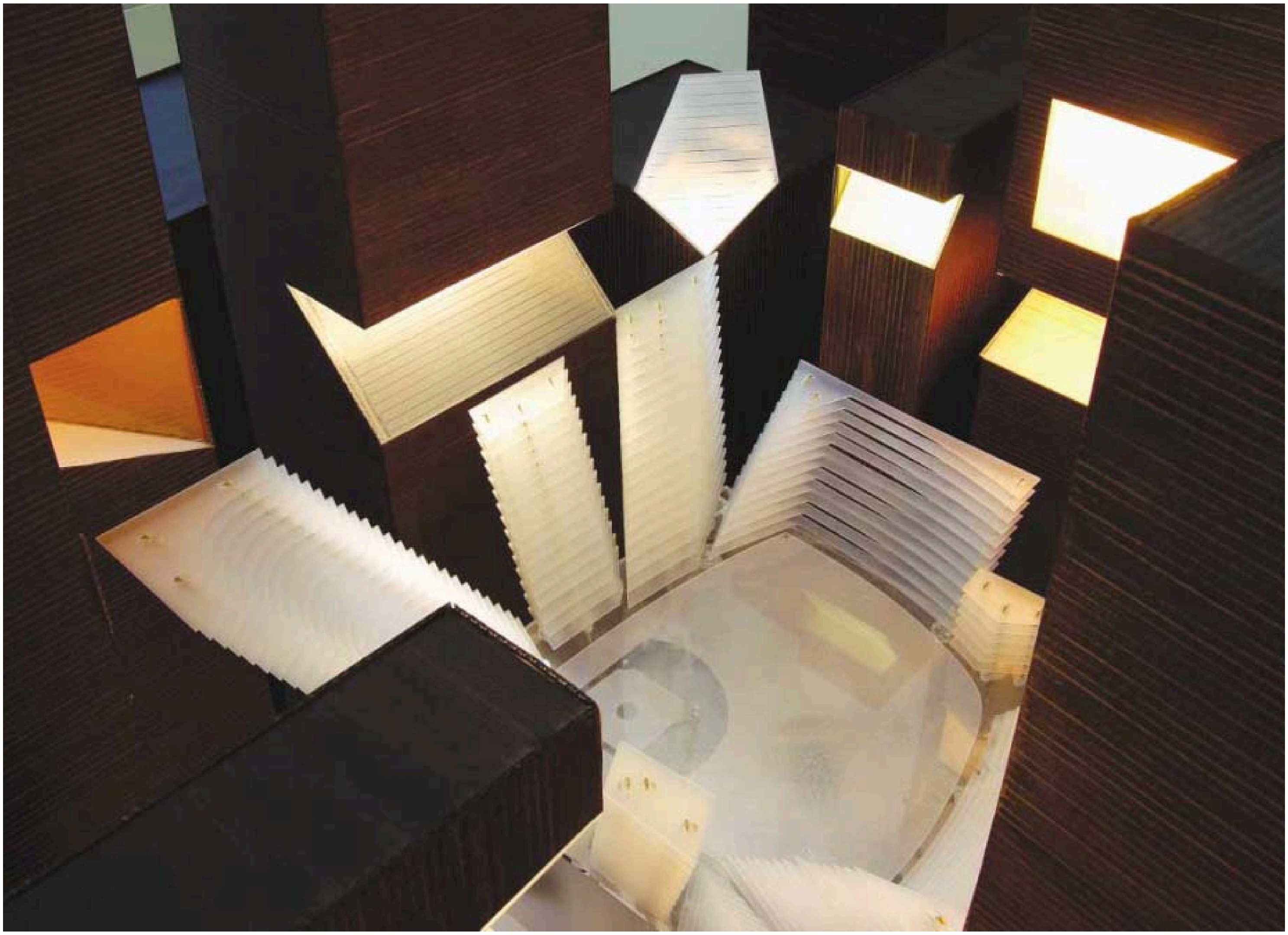
Studio/Gang
Sports Stadium

Studio/Gang, a Chicago-based firm, noticed that new sports stadiums on the outskirts of downtowns created huge traffic jams when the game was over, and then would lie fallow too much of the year. In this project for *Transcending Type*, Jeanne Gang, AIA, and her partner Mark Schendel, AIA, envisioned a baseball stadium where a folding and unfolding seating bowl would be inserted literally in the skyline among high-rise towers. With its rooftop playing field, this compact solution would take up no more space than a city block and would disappear when not in use. It would also take advantage of the times (nights, weekends) when downtown city multilevel garages are vacant, and elevators and stair towers in the empty office buildings could be used for circulation. To demonstrate the idea for the exhibition, Studio/Gang had a kinetically folding and unfolding acrylic model of a seating bowl fabricated, and surrounded it with waxed corrugated-board models of tall buildings.

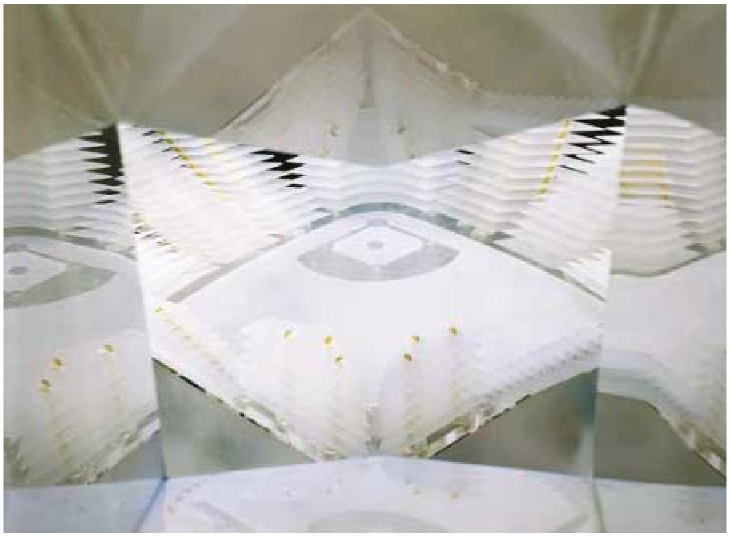
Founded by Jeanne Gang in 1997, Studio/Gang/Architects recently completed the Starlight Theatre in Rockford, Illinois, and a "stone curtain" for the *Masonry Variations* exhibition at the National Building Museum. The firm was included in the Design Vanguard issue in 2001 [RECORD, December 2001, page 82]. Gang teaches at Harvard and IIT. Fellow principal Mark Schendel is visiting associate professor at IIT.

Architect: *Studio/Gang/Architects—Jeanne Gang, AIA, and Mark Schendel, AIA, principals*
Project team: *Hanes Wingate, Jay Hoffman, Thorsten Johann, Schuyler Smith, Juliane Wolf, Lynda Bartoli, Sebastian Severino Vitantonio, Rodia Valladares Sanchez, Victoria Gonzalez Exposito, Lindsey Phillips, Rich Tickner*
Project sponsor: *Leah Zell*
Software: *Autodesk*





Called *Baseball in the City* by Studio/Gang, the model of a sports stadium in the sky occupied the rotunda of the U.S. Pavilion (opposite). There, the kinetic lucite model (this page) of the seating bowl could be glimpsed among the models of skyscrapers.



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Kolatan/MacDonald Studio

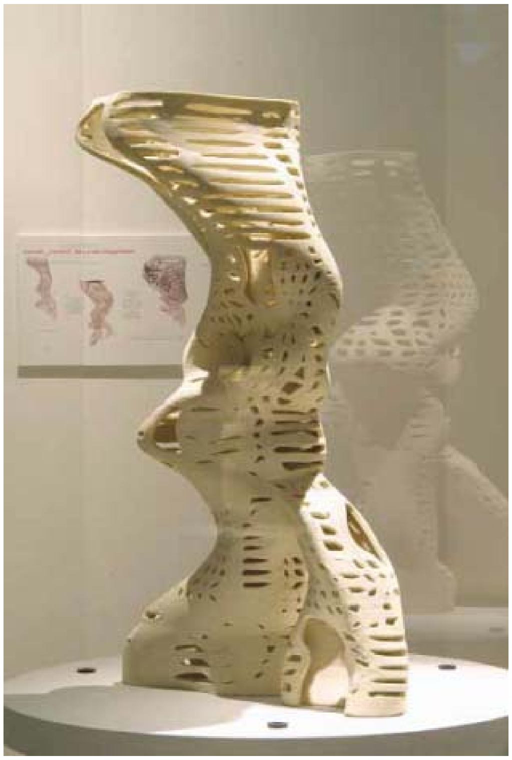
Apartment Tower

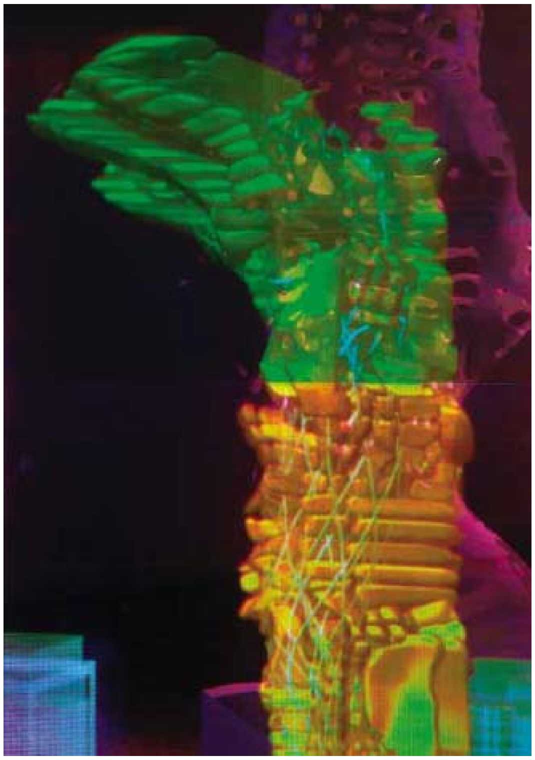
For its Millennium issue in 1999, RECORD asked Kolatan/MacDonald to design an apartment tower of the future [December 1999, page 88]. The result was *Resi-Rise*, a continuing preoccupation with the architects.

For the installation in the *Transcending Type* exhibition, Sulan Kolatan and William MacDonald emphasized the framework for the apartment building, displaying both a specially executed 8-foot-high model made of Corian's exterior cladding, and a double-skin, 30-inch-high prototype. In addition, a specially commissioned hologram, an existing 18-inch prototype, and a computerized animation gave visitors an idea how the frame could be inserted with living units, and customized. The architects foresee a structure made of fiber-reinforced-polymer composite components, into which are inserted plastic pods that undergo molecular restructuring with stress.

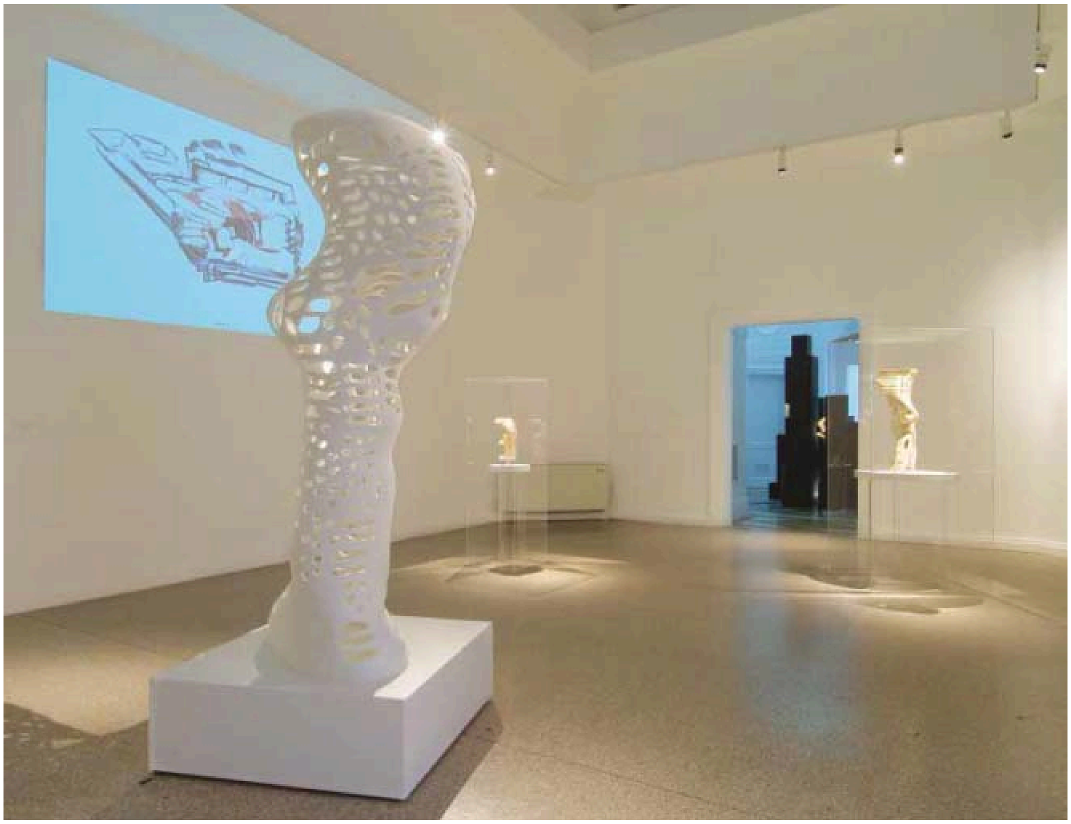
Kolatan and MacDonald formed its New York office in 1988. The firm has exhibited work at the Museum of Modern Art and the Centre Pompidou. MacDonald codirects core studios at Columbia University's architecture school, where Kolatan teaches.

Architect: *Kolatan/MacDonald Studio—Sulan Kolatan and William MacDonald, principals*
Design team: *S. Colombo, J. Baker, L. Malibran, Y. do Campo, G. Rojas, A. Burke, M. Huang, P. Wong, R. Harvey, M. Leung, J. Sanchez, B. Schenk, M. Komidou*
Film: *C. Bruun, E. Schuldenfrei*
Graphics: *N. Olmsted*
Sponsors/fabricators: *DuPont CORIAN; Evans and Paul; 3D Systems; Z Corporation Zebra Imaging; Kennedy Fabrications*
Software: *Autodesk*





In the *Resi-Rise* installation, the firm of Kolatan/MacDonald displayed an 8-foot-high model of Corian (below and opposite), demonstrating the structural framework; a hologram (top right); and a 30-inch-high prototype model (top left); plus a film to show how the living and working pods were assembled.



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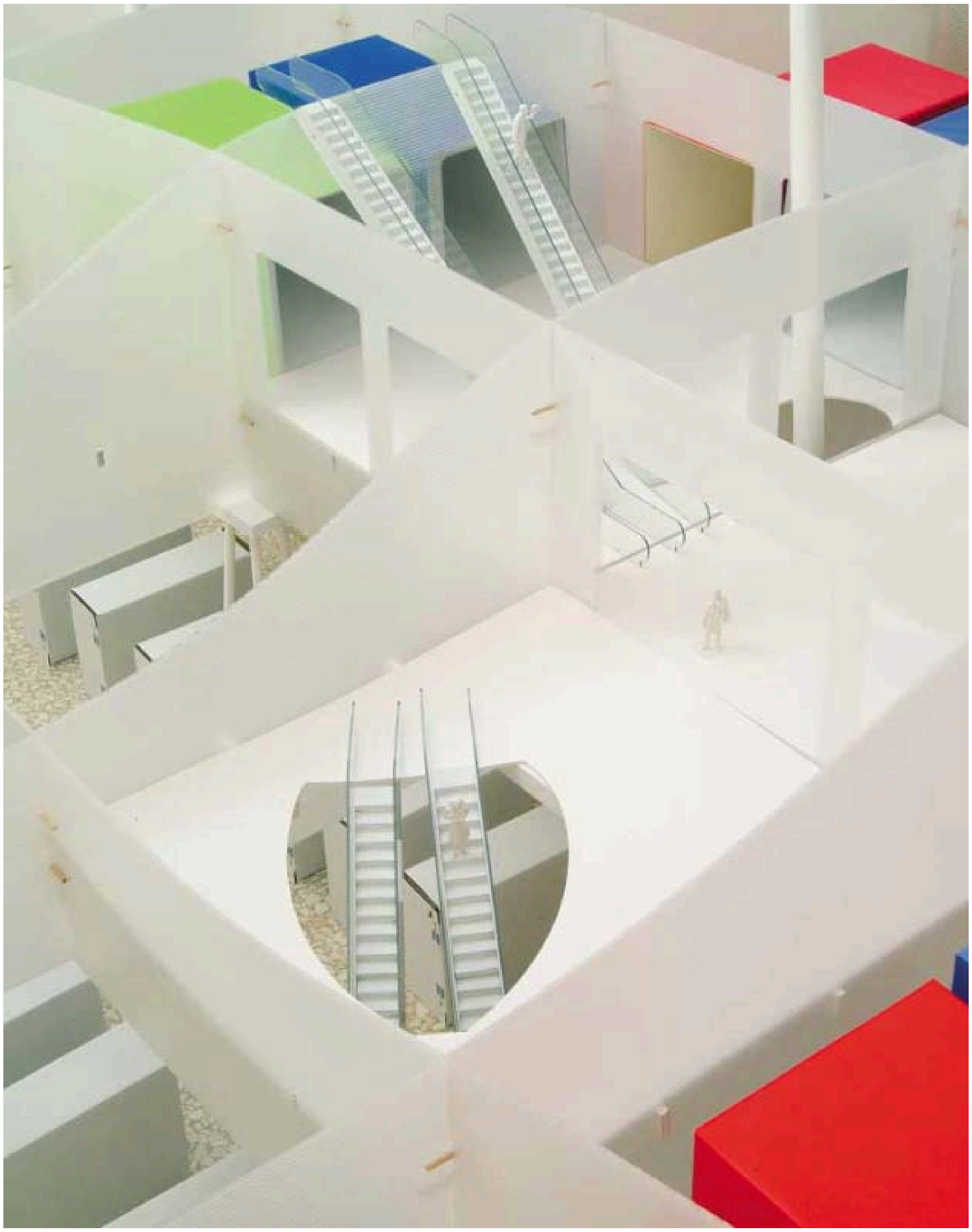
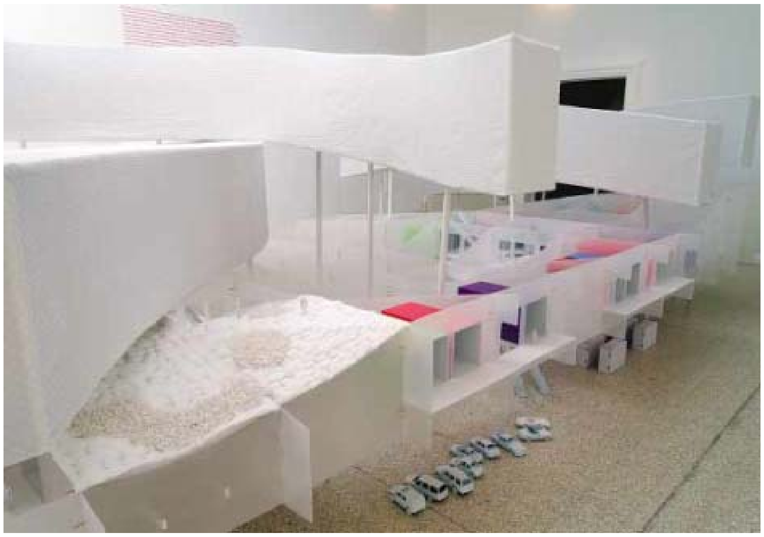
George Yu Architects
Shopping Center

As a response to the challenge of developing new forms of architecture and urban design out of existing building types in the *Transcending Type* exhibition, George Yu Architects took on the big-box shopping center. The firm proposes weaving elements of conventional shopping centers with those of the super-size ones in a landscape of terraced residential buildings and public parks. The project, dubbed *Shop Lift: Rethinking Retail*, is designed with a continuous columnar grid supporting parking, big stores and small shops, roof top terraces and plazas, and residential units atop the complex. The model in the installation, composed of hollow-core plastic-panel and terry-cloth fabric, was put together on-site.

George Yu, AIA, who is based in Los Angeles, has designed over 65 projects, including the prototypes and rollout of fashion boutiques for Max Studio worldwide [RECORD, February 2004, page 150]. After working for Morphosis, he founded his office of George Yu Architects in 1992. Subsequently, he collaborated with Jason King as Design Office, which was included in RECORD's Design Vanguard 2000 [December 2000, page 100]. Yu is currently on the faculty of SCI-Arc and was winner of Canada's Prix de Rome for 2000.

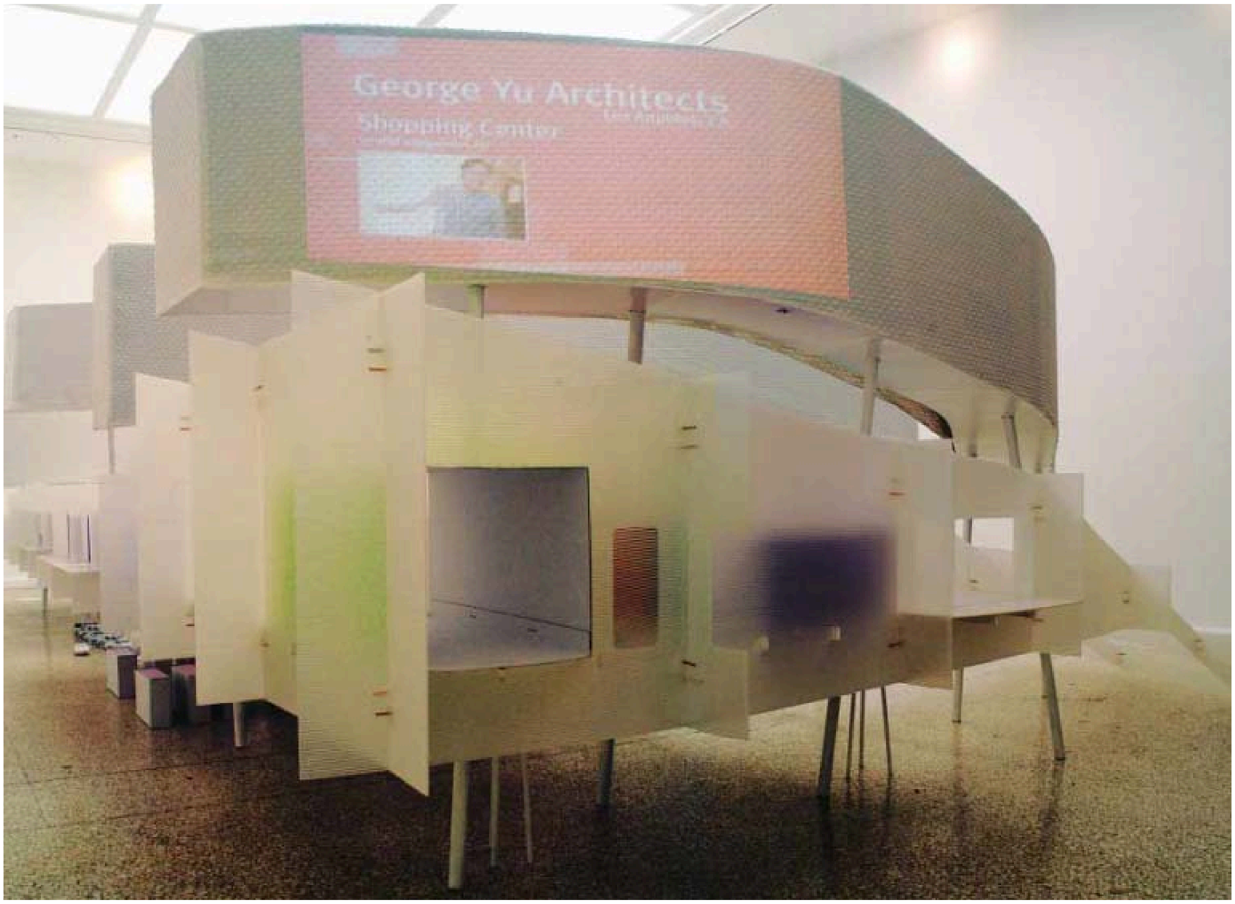
Architect: *George Yu Architects—George Yu, AIA, principal*
Design concept: *Sandra Levesque, Jonathan Garnett*
Design team: *Konstantinos Chrysos, Marianthi Tatari*
Research and communications: *Linda Hart*
Installation: *Owen Gerst, Yosuke Sugiyama*
Fabricator: *Carole Yu*
Economic analysis: *Economics Research Associates (David Bergman)*
Executive adviser: *An Te Liu*
Software: *Autodesk*



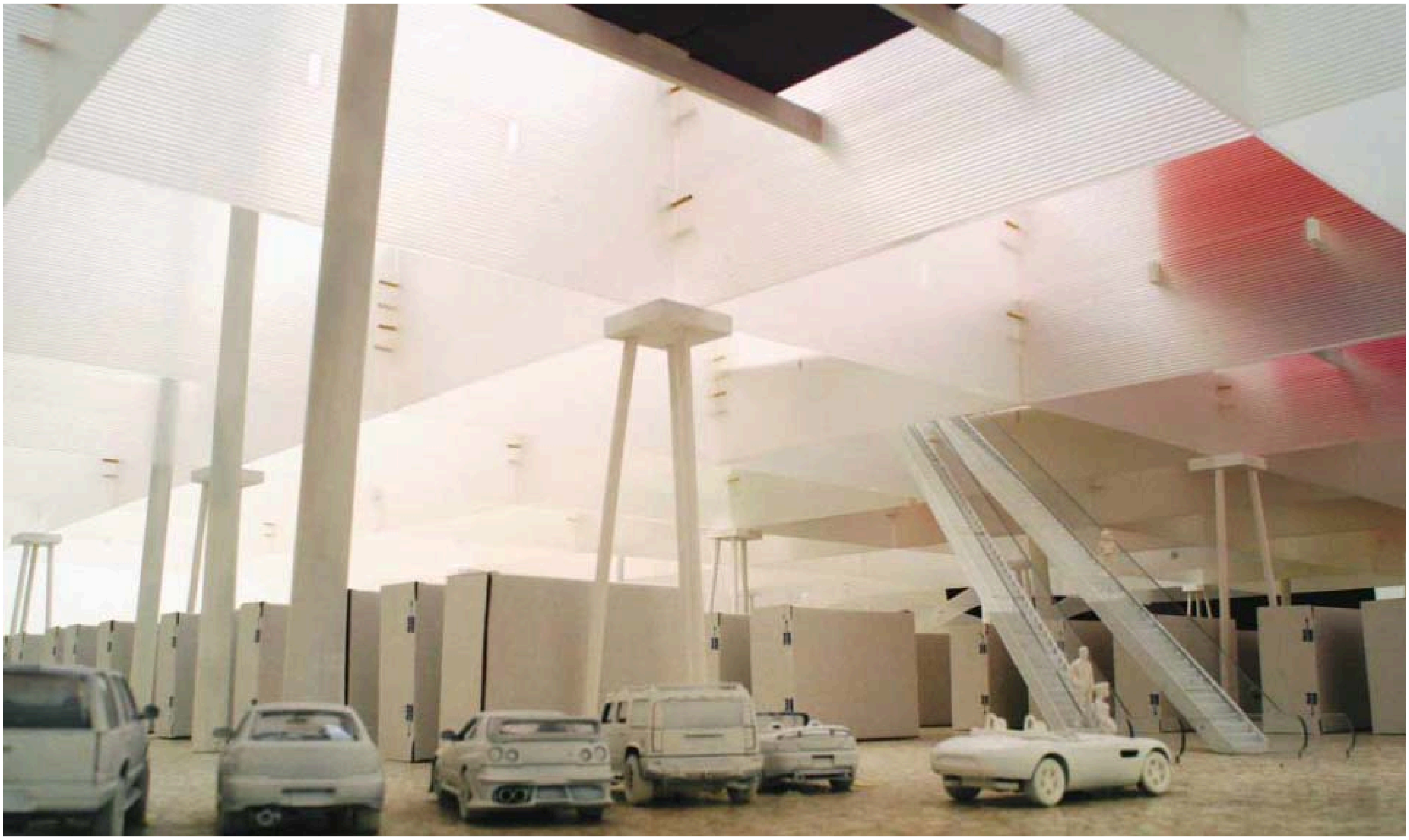


In the retail center, parking is at ground level (opposite, bottom), with escalators taking visitors to the various shops and stores (above and left), and on up to the terraces, gardens, and residential units. The colorful elements represent boutiques that can be dropped into the framework of the mixed-used structure.

PHOTOGRAPHY: © ELLIOTT KAUFMAN (TOP); GEORGE YU (BOTTOM AND OPPOSITE)


George Yu Architects
Los Angeles, CA
Shopping Center

George Yu's shopping center (aka *Shop Lift*) presented a room-size model (right), to demonstrate the infill strategy of mixed uses (residential and public space) that could be built into the shopping center. Projected on one corner of the hollow-core plastic-panel model was an orientation video created by Audtodesk that illustrated the design process of each firm represented in the *Transforming Type* exhibition.



Tech Backstory: Reiser + Umemoto's Highway Interchange

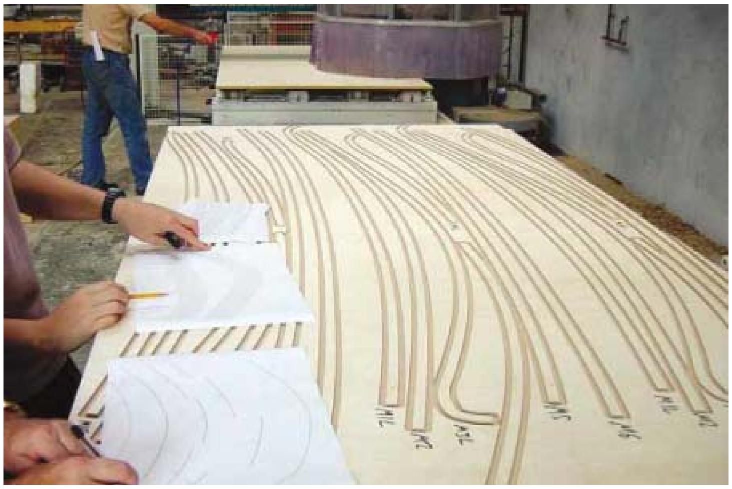
By Charles Linn, FAIA

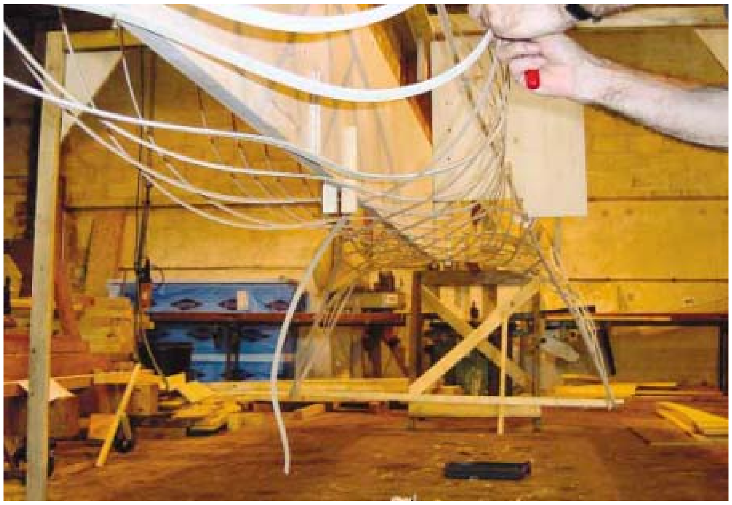
The model for the bridge in the Highway Interchange installation of *Transcending Type* at the U.S. Pavilion grew out of a project Reiser + Umemoto is currently collaborating on with Charles Walker of Arup's Advanced Geometry Unit in London. The architects intend for the real structure to be made of glue-laminated timber at the Alishan Mountains in Taiwan. Theoretically, the full-size version is scalable—anything from pedestrians to automobiles could be carried by different versions. In the long elevation, the design bears an uncanny resemblance to the moment diagram for a a beam with a uniformly supported simple span with cantilevered ends included in every college-level structural engineering textbook.

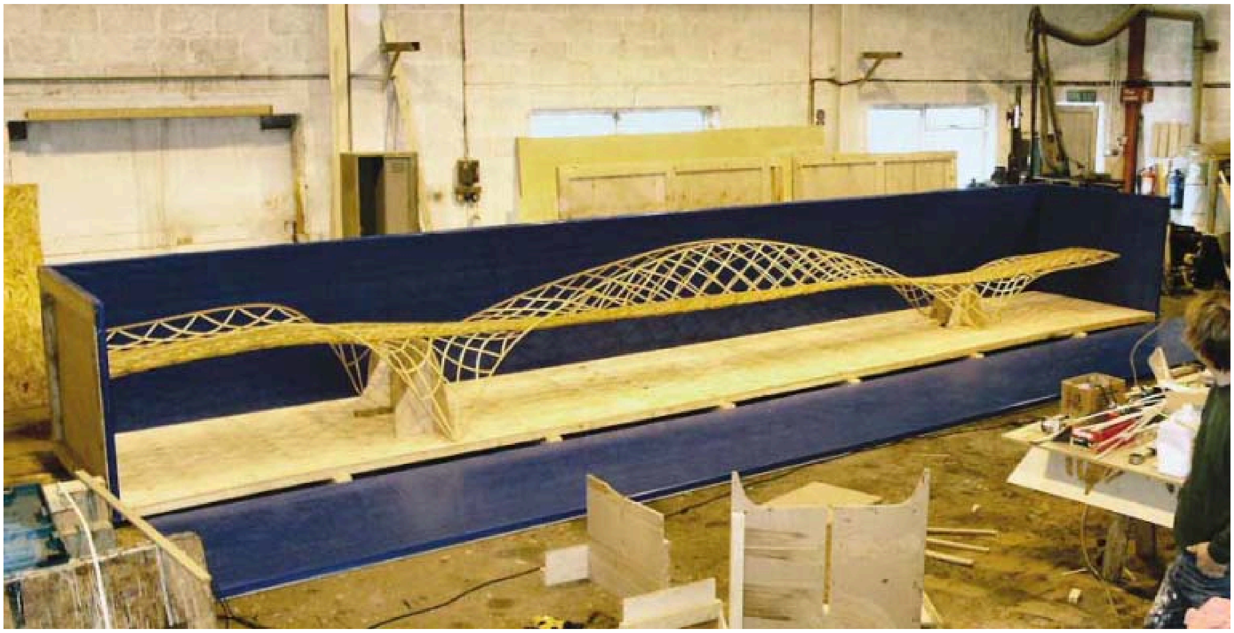
The 63-pound, 33-foot-long latticelike model was fabricated in the U.K. by Timber Engineering Connections (TEC), which normally executes real, full-size structures. Gordon Cowley of TEC says, "In the past, three-dimensional wooden models like this have been made by draping thin strips of wood over a mold. This one gave us the opportunity to test the theory that we could make one out of flat sheets of material." Architectural Desktop 2005 from Autodesk was used to determine the shape of each frame, so these could be cutout sheets with TEC's five-axis computer-numerically-controlled (CNC) router.

The U-shaped pieces were made of 4-millimeter-thick plywood, which is too flexible to be cut out without being supported from the back, so it was glued to a medium-density-fiberboard base. During assembly, the structure's edge beam was held in position by a temporary form. The frames are loosened from the baseboard using solvent, then peeled off as needed and installed.

For the sake of accuracy in the assembly of the structure, even the location and angle of each bolt hole was determined by the software and drilled automatically. Wherever two struts cross, a single bolt holds the joint together. "There is only one way that it can go together," says Cowley, "so it has to be precise." ■







Technicians at Timber Engineering Connections check the dimensions of plywood frames after they have been cut out by a CNC router (top). The bridge is supported by a temporary frame during assembly (middle). The finished model sits in its crate (left) just prior to being shipped to Venice.

PHOTOGRAPHY: COURTESY TIMBER ENGINEERING CONNECTIONS

Kolatan/MacDonald's *Resi-Rise*

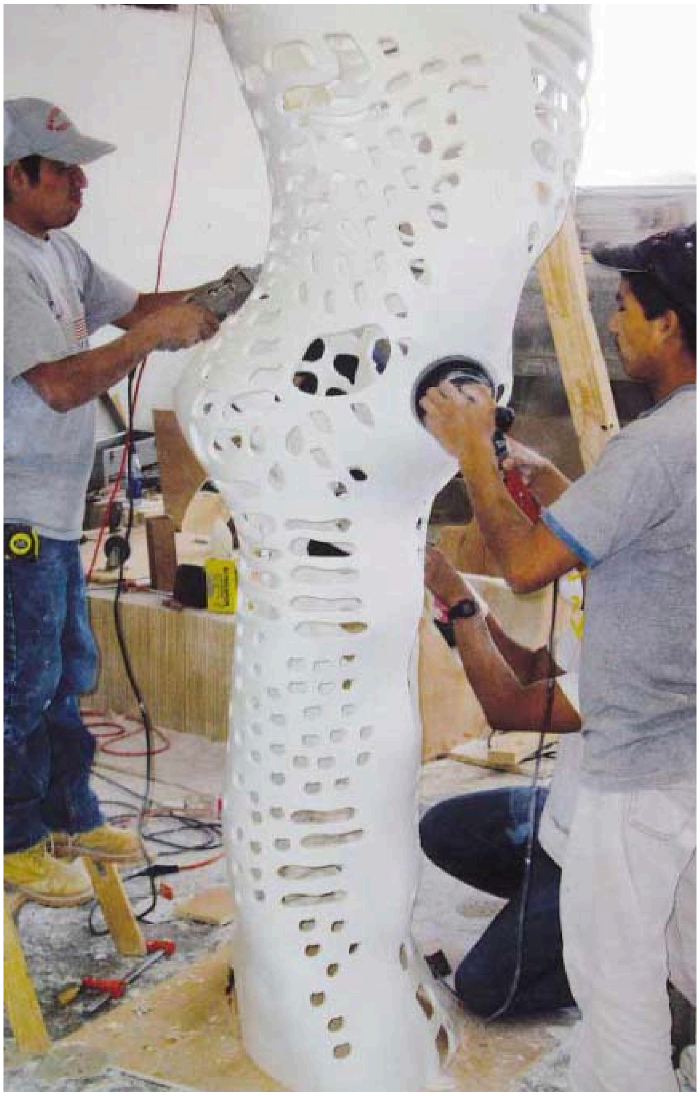
At *Transcending Type* in the U.S. Pavilion, Kolatan/MacDonald showed its long-term project, *Resi-Rise*, using three new means of expression: a model made of Dupont Corian; a small but complex model made with rapid prototyping equipment; and a new kind of hologram.

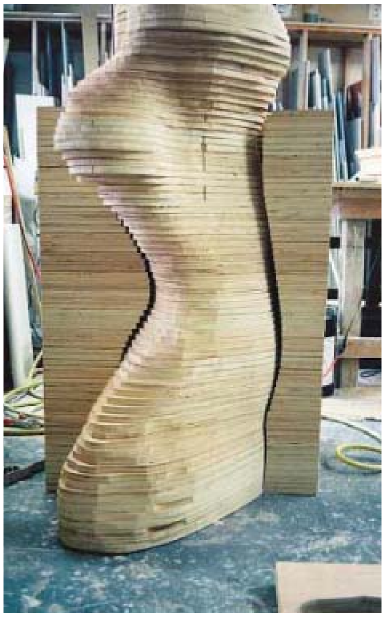
The 8-foot-high model, made of exterior Corian, was fabricated by Evans & Paul Unlimited, of College Point, New York. In the first part of the process, Autodesk Architectural Desktop 2005 was used to drive a CNC router. This cut out plywood shapes, which were stacked to create a multipart mold. Two-by-3-foot rectangles of Corian material were heated until flexible, placed between halves of the mold, and sealed in a neoprene vacuum bag. When air was evacuated from the bag, the mold parts were forced together to form the sheets. The shaped pieces were fitted together, joined with liquid Corian, then sanded and polished to create the final form.

A smaller model was made by Z Corporation in Burlington, Massachusetts, using a 3D printer the company manufactures. The machine uses Architectural Desktop data to guide an ink-jet printhead. It applies layer upon layer of glue to a plaster powder base. As these layers build up, a three-dimensional form emerges. 3D printers are most often used to make engineering part prototypes, but architects are using them for modelmaking with increasing regularity.

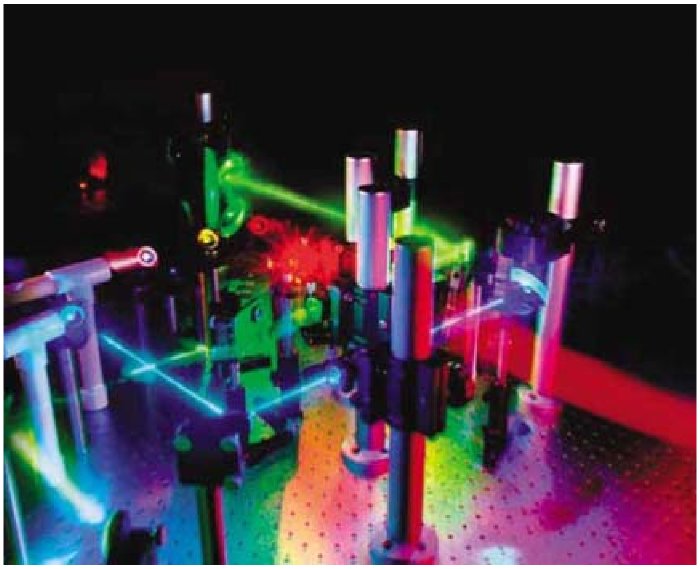
The project was also illustrated in two dimensions using a recently developed type of complex hologram created by Zebra Imaging of Austin, Texas. Lasers are used to burn "hogels," which are high-resolution images, into photopolymer film. Each hogel is a digital hologram itself that represents 1 million images. There are about 600,000 hogels in each of two 2-foot-by-2-foot tiles that made up the hologram made for the show. ■

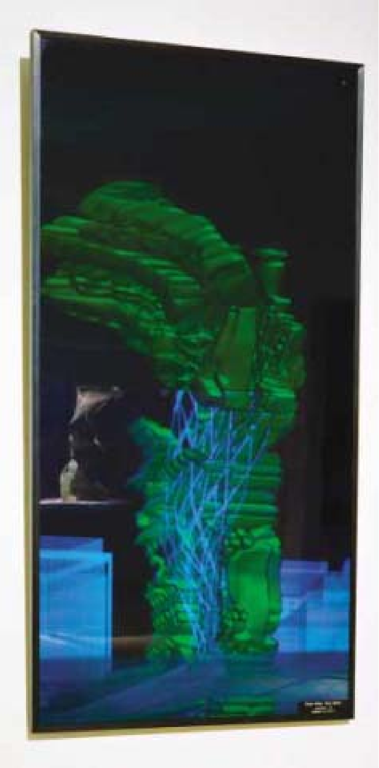
PHOTOGRAPHY: COURTESY EVANS & PAUL UNLIMITED (TOP TWO); ZEBRA IMAGING (BOTTOM LEFT); © ELLIOTT KAUFMAN (BOTTOM RIGHT)





The Corian model during construction in Evans & Paul Unlimited's shop (above and left). Zebra Imaging's lasers burn film to create a hologram of *Resi-Rise* (below left and right).





Where do ideas come from?

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Metamorph exhibition in the Arsenale and the Italian Pavilion

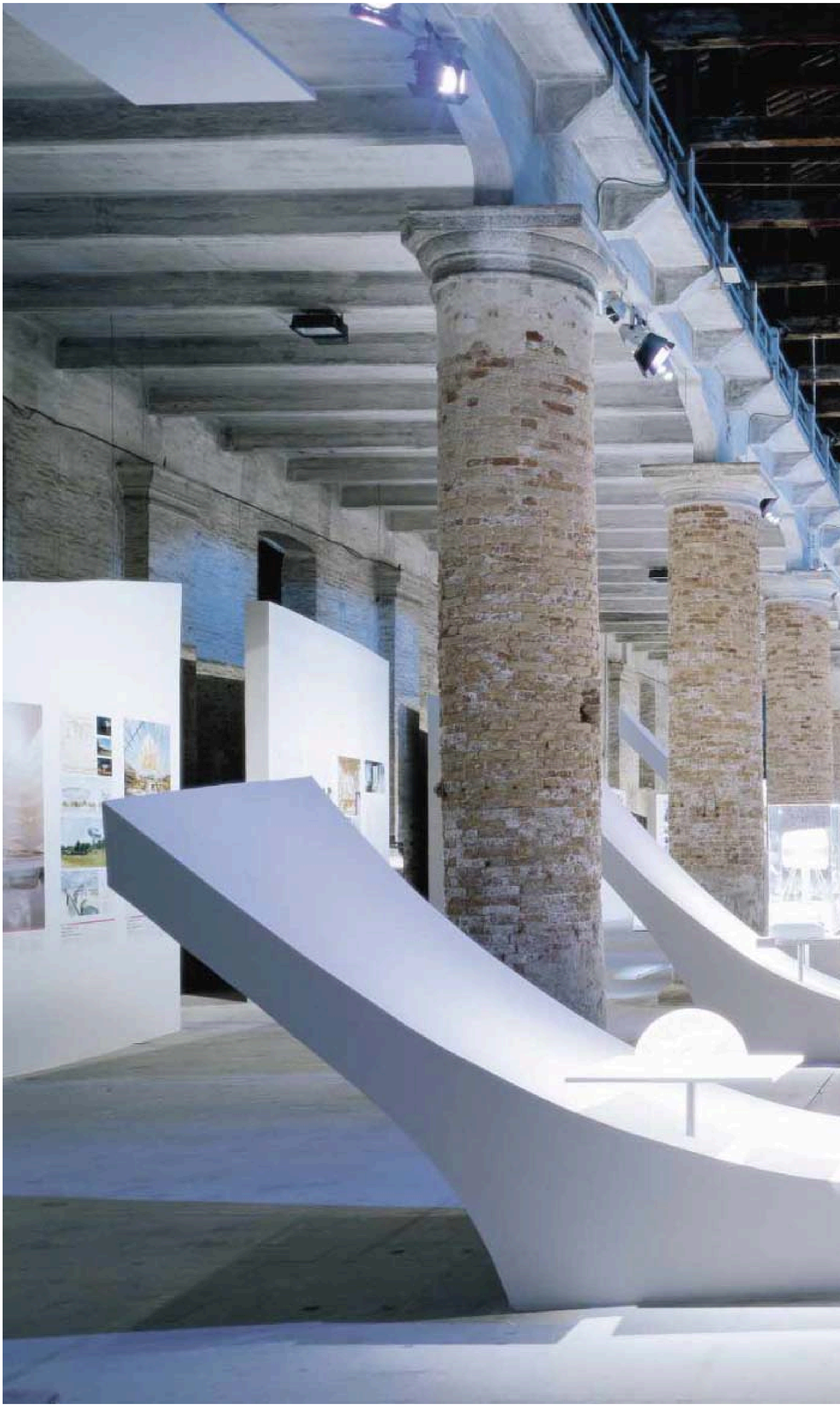
By Joseph Giovannini

For the first time in a generation, the much-watched Venice International Architectural Biennale showed evidence that at last architects, tossed between Modernism, Postmodernism, and Deconstructivism over the past 25 years, have arrived at a consensus rich and credible enough to explore for several Biennales to come. In September, architectural historian Kurt W. Forster, the director of the ninth Venice exposition, *Metamorph*, presented work that supports what he calls a new architectural era. In the extensive exhibition spaces for which he was responsible—the Arsenale shipyard and the Italian Pavilion in the Giardini di Castello—Forster filled the halls with models and drawings characterized by complexity and an intense individuality, based on the concept of change and metamorphosis.

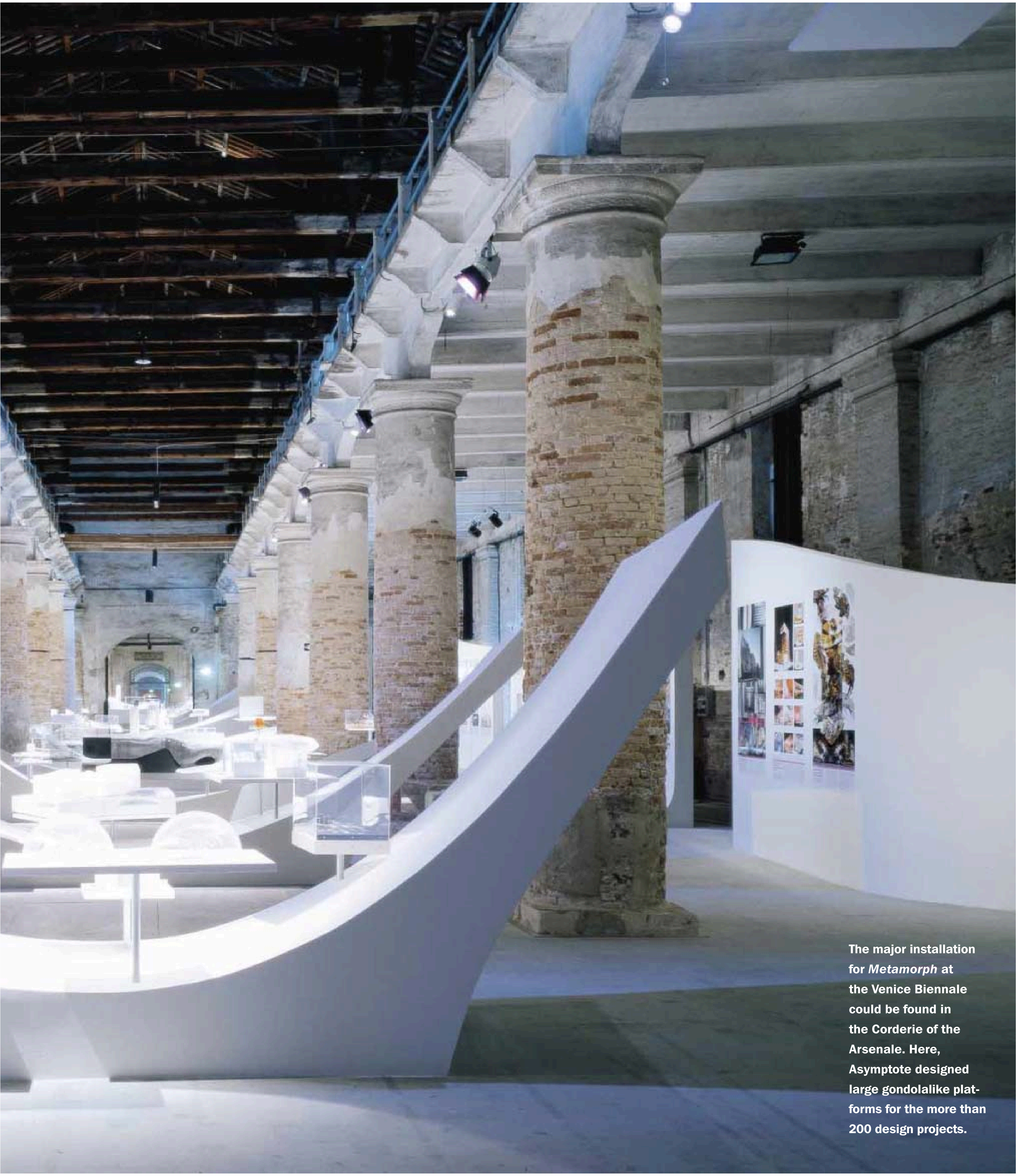
The static world once typified by traditional post-and-beam construction has yielded to organic landscape forms and to the compound curves of abstract mathematical shapes. If in 1980 the First International Architectural Biennale, titled *The Presence of the Past*, declared the overarching theme of history, the recent exhibition posited the end of a classical Newtonian world understood through stable structures and based on immutable laws. *Metamorph* offered buildings whose variety challenged the notion that there are any universal truths architecture must obey.

Hani Rashid and Lise Ann Couture of the New York–based firm Asymptote illustrated the idea of an

Joseph Giovannini is a teacher and a critic with a design studio in New York City.



PHOTOGRAPHY: © CHRISTIAN RICHTERS (THIS SPREAD)



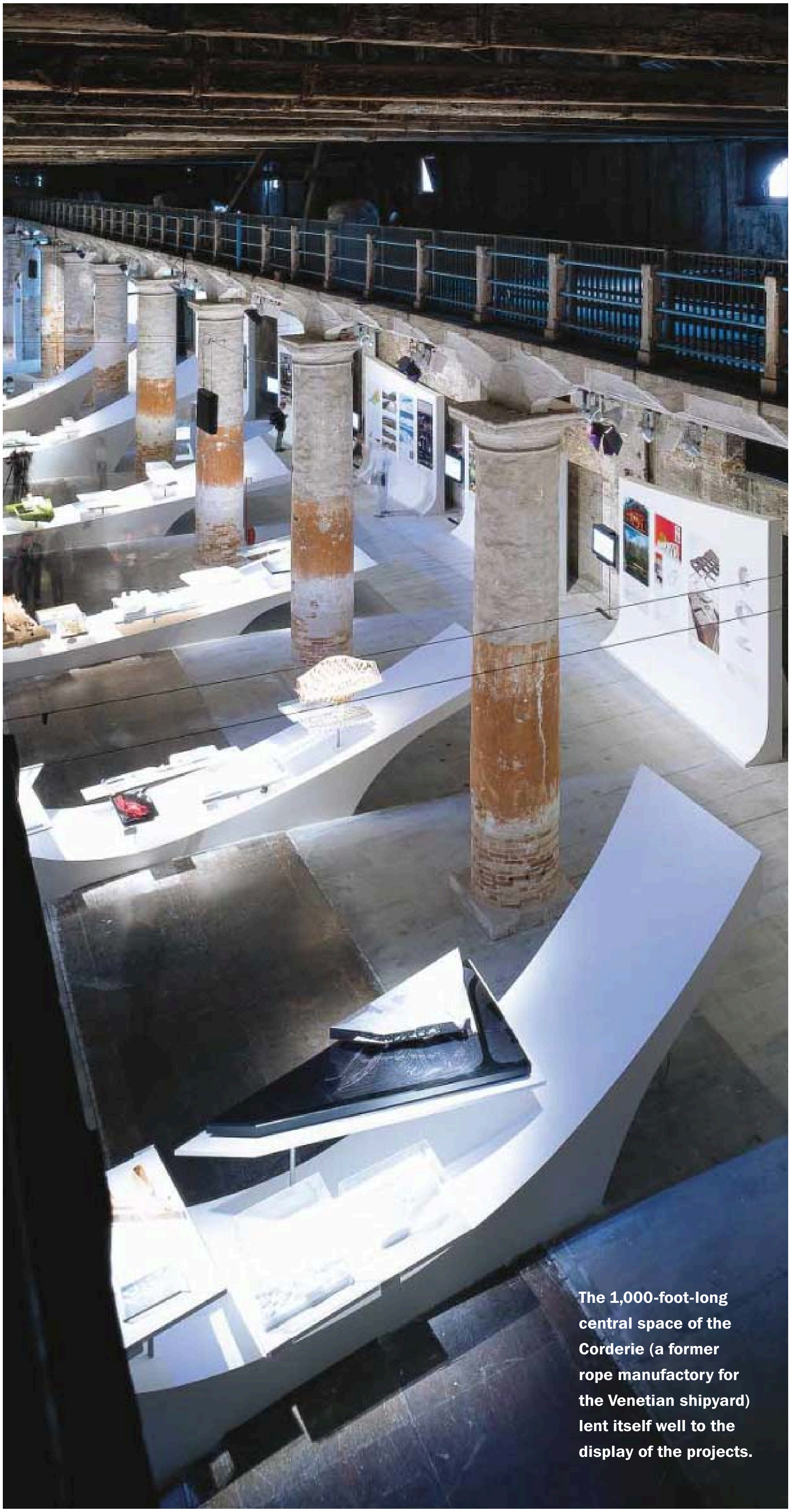
The major installation for *Metamorph* at the Venice Biennale could be found in the Corderie of the Arsenale. Here, Asymptote designed large gondolalike platforms for the more than 200 design projects.

architecture of change with their installation in the Corderie of the Arsenale, where Venice once built the ships for its navy. Rashid and Couture designed long, white, elegantly abstract gondolas of Sheetrock and steel with warped surfaces on which models seemed to float, every podium different from the last in a constantly changing series. Beyond the tips of the gondolas, pulled and twisted like toffee into the spaces between the Corderie's columns, were drawings and photographs hung on curved walls of changing height. The walls cupped the voluminous interiors, transforming the straight, traditional brick building into a flowing space.

Asymptote aimed at building the idea of change into its installation. "The world is unstable, and people live in the unstable flow, in the flux of movement," says Rashid. The Biennale has come a long way since *The Presence of the Past*, where a procession of facades assumed the static lineup of shops on a traditional street. It has even progressed since 2000, when the computer made a premature debut at the Seventh International Architectural Biennale, but which was not properly contextualized in a convincing theme.

In Forster's postclassical shift to flux and instability for this Biennale, mystery trumped clarity as turning, self-mutating designs, often aided and abetted by computer technology, became the new norm of exploration. Yet the computer has been absorbed in projects that achieve a maturity beyond the formless blobs generated not many years ago. For example, in a small house in Venice, California, Greg Lynn avoided Gehry's complex exterior forms, developing instead distorted bubbles of space inside, where void itself becomes a solid.

Of all the projects in the Corderie (and the Biennale as a whole), the project that most emphatically embodied notions of



The 1,000-foot-long central space of the Corderie (a former rope manufactory for the Venetian shipyard) lent itself well to the display of the projects.

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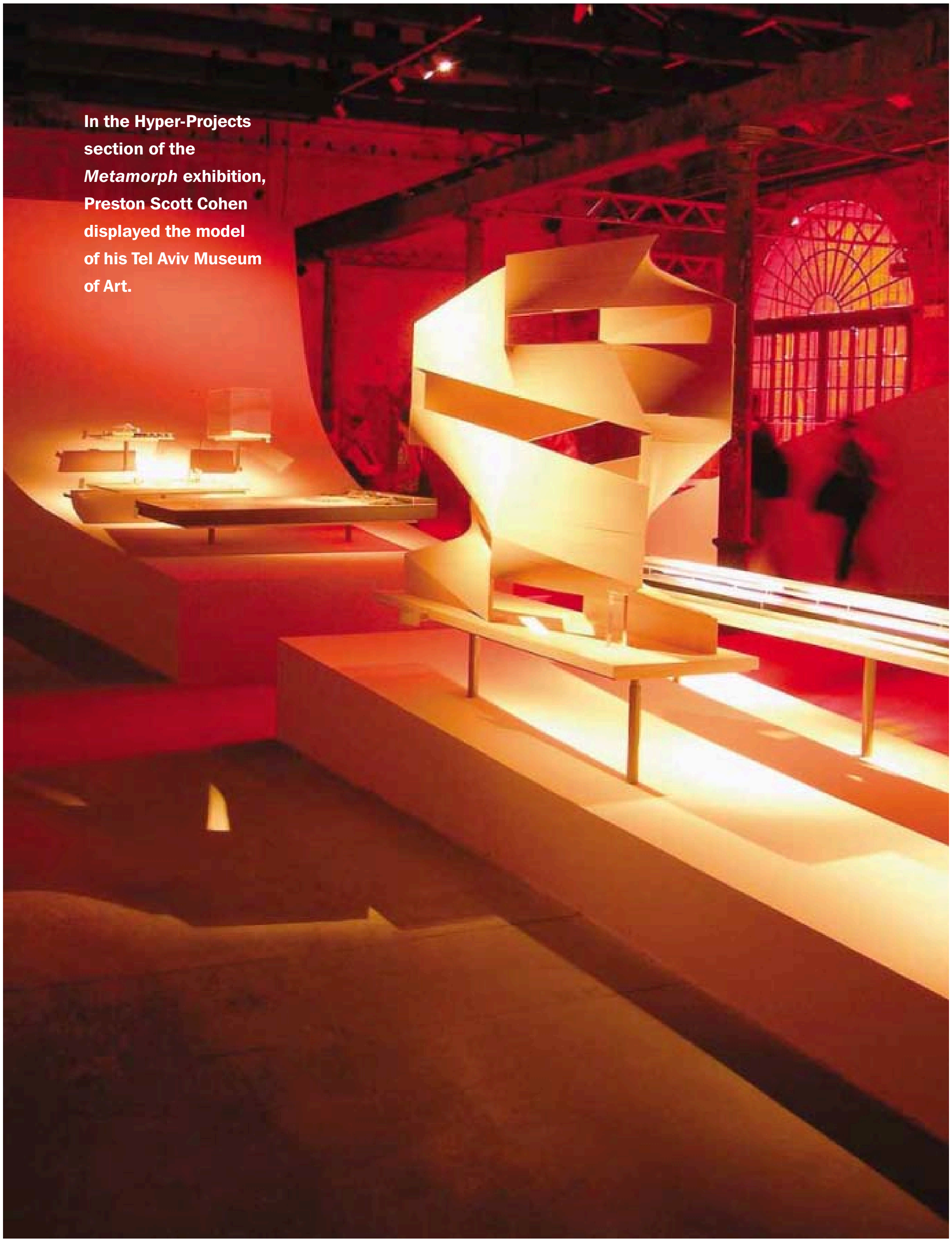
change and transformation—even though it was underdocumented and not prominently featured—was an outpost of the Guggenheim designed for Taichung, Taiwan, by Zaha Hadid. Beyond her computer-generated liquid shapes, Hadid proposes floors with entire sections that rise and fall, like elevator platforms, and roofs that lift like the top of a convertible. So many parts of the kinetic building move that the architect, working in collaboration with partner Patrick Schumacher, achieves an Einsteinian relativity in space: It's difficult to distinguish which parts actually remain stationary. It suggests a state of constant becoming.

While Forster organized the sections within the Arsenale according to formal categories such as Transformations, Topography, Surfaces, and Atmosphere, he concluded with a fifth section called Hyper-Projects. Here the architects orchestrated many contemporary themes into very complex and impressive wholes: Boston architect Preston Scott Cohen inverted the Guggenheim in his Tel Aviv Museum of Art in Israel, angling ramps in the center of the building around a void that rises through the building like a mysterious chimney. The architect achieves what Churchill might call an enigma wrapped in a conundrum. In the same section, the Viennese firm Coop Himmelb(l)au presented the Musée des Confluences in Lyons, France, a majestic cloud of glass billowing around a complex hall layered with ramps leading to many levels.



In the Hyper-Projects section of the *Metamorph* exhibition, Preston Scott Cohen displayed the model of his Tel Aviv Museum of Art.

PHOTOGRAPHY: COURTESY PRESTON SCOTT COHEN

Forster continued his thesis in his selections for the Italian pavilion in the Giardini di Castello near the Arsenale. In one installation in the Italian Pavilion, UN Studio underscored the new architectural physics underlying many exhibits. The architects, Ben van Berkel and Caroline Bos, built a warped wall representing their design for a transportation hub in Arnhem, Holland, a computer-generated project of continuously turning surfaces, floors merging into walls merging into ceilings.

Forster devoted most of the space in the Italian pavilion to an exhibition presenting concert halls as a significantly proliferating building type, many built or proposed in what is emerging as architecture's new client state, China. New York architect Peter Eisenman, who won the Biennale's award for lifetime achievement, showed the Teatro de la Musica in Santiago de Compostela, Spain, whose roofscape resembles a rippling hillside. In Brazil, Christian de Portzamparc abstracted notions of the landscape for a City of Music in Rio de Janeiro. The monumental forms, bracketed between the horizontal planes of a structure reminiscent of a tropical veranda, recall distant mountains.

In 1991, at the Fifth Architecture Biennale, Frank Gehry exhibited Walt Disney Concert Hall in Los Angeles with baroque, ribbon-like bands wrapping the building, famously made possible by the computer. (The same building, completed in 2003, is represented again this year.) But now, architects in this Biennale use the computer to develop interior spaces that show the same degree of baroque complexity, perhaps a comment on Gehry's resistance to developing interiors as complex and as

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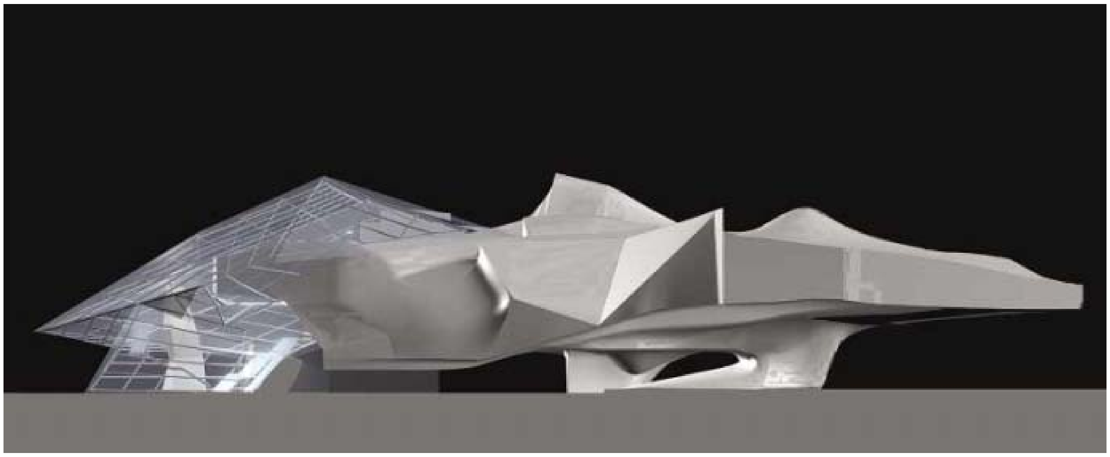
curviplanar as his exteriors.

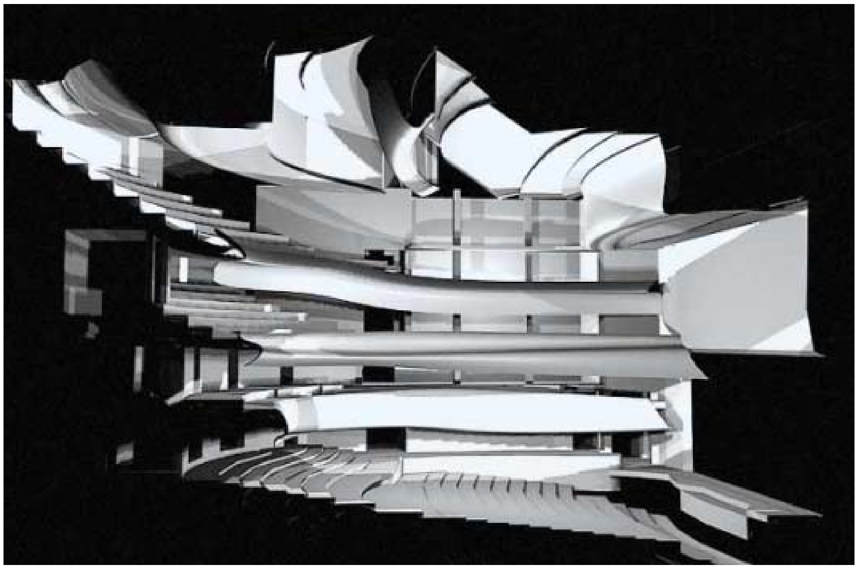
In their design for an opera house competition in Ghent, Belgium, Toyo Ito and Andrea Branzi turned Gehry's sock inside out, creating a boxy exterior with an interior as richly convoluted as a piece of Swiss cheese, the churning interior spaces shaped by continuously bubbled surfaces.

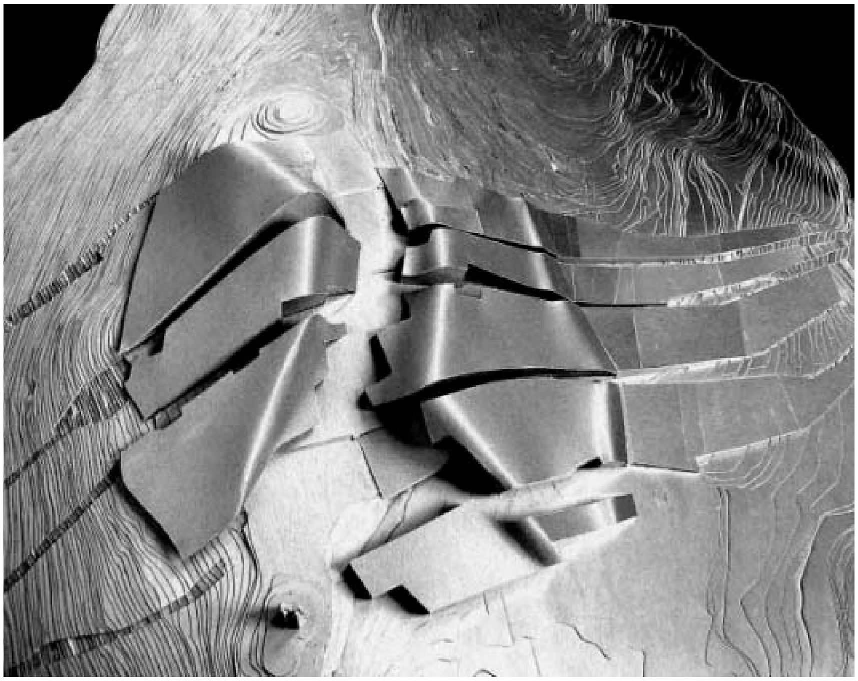
The show must be commended for presenting a cogent selection of relevant projects within an appropriate framework of ideas. The quality of the projects, however, was inconsistent, and sometimes disappointing: Minor works by minor figures were given shelf time equal to ranking work by ranking figures. There were also repeats from past Biennales (not just Disney Concert Hall), as well as old specimens that hardly constituted news. The selection left the impression that Forster had to stretch his sensibility to reach a generation younger than the one he understands best, Eisenman and Gehry's.

The achievement of the Biennale is that material and aesthetic evidence supports a valid and relevant thesis—we are in a new architectural era founded on the idea of change. The disappointment is that other shows, including the exhibition *Non-Standard Architectures* at the Pompidou Center early this year, and the *Latent Utopias* in the Graz 2002–2003 exposition in Austria, already pointed the way to the same conclusion.

The Biennale, then, accomplishes the considerable service of surveying and isolating the subject of change, and displaying its manifestations across the field. But it only reiterates and expands on what most of us already know. At least the general public now has the opportunity to view the products of a rapidly evolving architectural world. ■







One of the many projects in the Arsenale was Coop Himmelb(l)au's Musée des Confluences in Lyons, France (top), which is expected to open in 2007. Peter Eisenman's project for the Teatro de la Musica in Santiago de Compostela, Spain (left and bottom), now under construction, was on view in the Italian Pavilion as part of a survey of innovative concert hall design.

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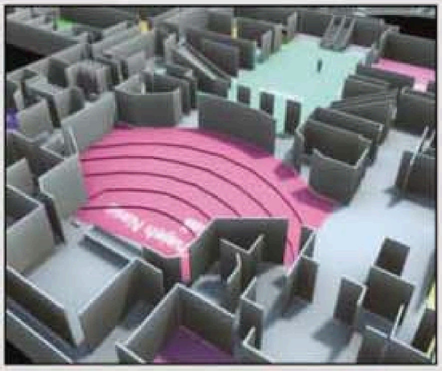
Resi-Rise Skyscraper by KOL/MAC Studio: Currently on display at the 2004 Venice Biennale International Architecture Exhibition



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Architectural Record Celebrates The Opening of the Exhibition **Transcending Type** at the Venice Biennale

State Department press conference at the U.S. Pavilion in the Giardini di Castello, September 10

1. *State Department's Patricia Harrison with U.S. Commissioner Robert Ivy and architect Daniel Libeskind*
2. *The pavilion before the opening*
3. *Architects Sulan Kolatan,and William MacDonald*
4. *Architects David J. Lewis, Marc Tsurumaki and Paul Lewis*
5. *Architect Enrique Norten, Robert Ivy, architectural historian Joseph Rykwert and Daniel Libeskind*
6. *Holly Ivy, Montenidoli's Elisabetta Fagiuoli and Robert Ivy*
7. *Architects Jeanne Gang and Mark Schendel*
8. *Architects John Frane and Hadrian Predock*
9. *Curatorial consultant Christian Bruun and* RECORD*'s associate publisher Laura Viscusi*

Gala opening party at the Peggy Guggenheim museum hosted by *Architectural Record*

1. *Peggy Guggenheim museum*
2. *Thomas Krens, director, Guggenheim Foundation*
3. *SFMOMA's Joseph Rosa, architects Wolf Prix and Zaha Hadid*
4. *Deputy commissioner Clifford Pearson and architect Nanako Umemoto*
5. *Deputy Commissioner Suzanne Stephens and Guggenheim's Liesbeth Bollen*
6. *Sarah Amelar from* RECORD *with Barbara Pine*

National Pavilions in the Giardini, a quick look

By Fred A. Bernstein

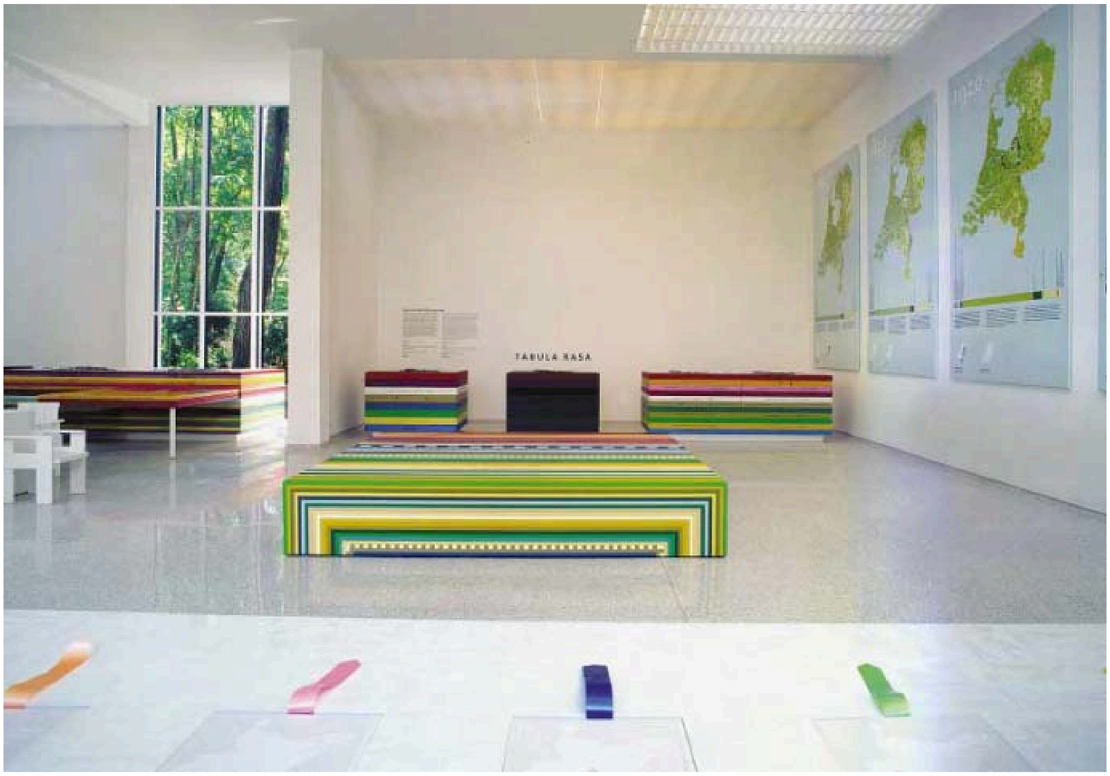
Like an essay topic posed by a mischievous professor, Kurt Forster's catchall theme for this year's Architecture Biennale, *Metamorph*, left room for widely divergent approaches in the national pavilions. Instead of sending an exhibition to Venice, Russia sent groups of students. The pavilion, ingeniously, became a classroom for weeklong workshops on such topics as "the effects of industrial delocalization," and at the end of each week, the students' projects were displayed on the pavilion walls. Denmark was also in a what-if mode: The Danish Architecture Center sought out the Toronto-based Bruce Mau Design to work with a group of young Danish architects. Mau, a provocateur, posed questions to the group. One question, "What if Denmark doubled its coastline?" was explored in maps and models of a newly crenelated landmass. Another, "What if Greenland was Africa's water fountain?" contemplated melting glaciers to slake the world's thirst. (Identical exhibitions are running in Copenhagen and Toronto, and a summary of them is available at www.tooperfect.com.)

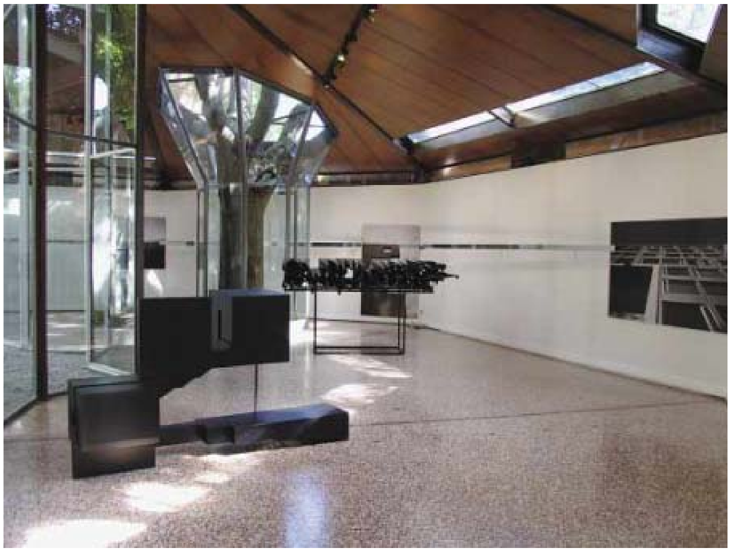
The exhibition in the Belgium pavilion, controversially, focused not on architecture but on its purported absence—in Kinshasa, capital of what was once the Belgian Congo. In a wall text accompanying photos by Marie-Françoise Plissart, anthropologist Filip De Boeck argued that in a decaying city, the human body is the "main infrastructural unit—Kinshasa's only 'building' that is constantly constructed and perfected." Some saw the exhibition as patronizing. Nevertheless, the Biennale judges awarded it a Golden Lion for best national pavilion.

The Netherlands approached its topic—how a densely populated country handles sprawl—with maps and statistics galore; like the Belgian entry, this would have been a better book than exhibition if not for an ingenious installation by Traast & Gruson, in which the placement of materials in drawers suggested a domestic-scaled dimension to a global problem. In the Polish pavilion, curator Adam Budak showed pieces by émigrés, including New York's Elizabeth Diller (who lived in Poland until she was six); and Zvi Hecker (who left for Israel after World War II), alongside work by young Polish practitioners. The Swiss installed a single, multiroom installation by Christian Waldvogel: The piece depicted the dismantling of the earth in order to build a better planet, Globus Cassus. Waldvogel's photomontages and portentous epigrams could be left hanging for next year's art biennale.

Canada, by contrast, took what seemed a conventional approach—giving its pavilion over to a single architecture firm, Saucier & Perrotte—but with unconventional results. The firm hung photos of completed works and renderings of a planned Canadian Museum for Human Rights alongside folded-metal sculptures suggested by the building forms. By using the techniques of artists not as an end, but as a means of elucidating architectural ideas, the Montreal-and-Toronto-based firm made a visit to Canada's pavilion as essential to Biennale attendees as a vaporetto. ■

Fred A. Bernstein, who frequently writes on architecture and design for The New York Times, *is the author of* Renovate *(Filipacchi, 2004).*





The Dutch Pavilion featured *Hybrid Landscapes: Designing for Sprawl in the Netherlands, 1980–2004*, curated by the Netherlands Architecture Institute (top). In the Canadian Pavilion (above), architects Saucier & Perrotte displayed an array of recent projects.

PHOTOGRAPHY: © ROB 'T HART (TOP); COURTESY SAUCIER & PERROTTE (BOTTOM)

Gala opening party at the Peggy Guggenheim museum hosted by *Architectural Record*

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1. *Robert Ivy and* New York Times *writer Julie Iovine*
2. *Architect George Yu and his wife Carole*
3. *Jeanne Gang with Stefano Giustiniani of the U.S. Embassy Rome*
4. *Jesse Reiser, Nanako Umemoto and Arup's Francis Archer*
5. *Kate Ryan and Megan Shaughnessy of Dupont Corian with RECORD'S Charles Linn*
6. *Winka Dubbeldam, Tom Kovac and Gary Nemchock of Titanium Metals*
7. *Wexner director Sherri Gelden and exhibition supporter Jeffrey Brown*
8. *Special Projects Manager for Peggy Guggenheim Collection, Chiara Barbieri, with Barbara Pine*
9. *Aaron Betsky of NAI, with architects Louisa Hutton and Margaret Helfand*

Cocktail reception at the Hotel Danieli honoring Autodesk's patronage of *Transcending Type*

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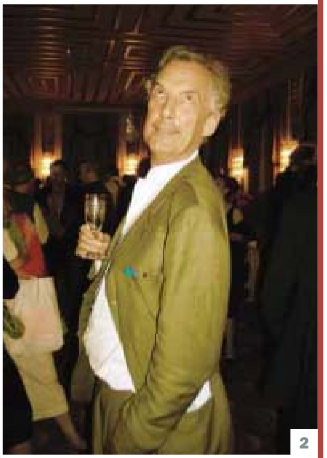
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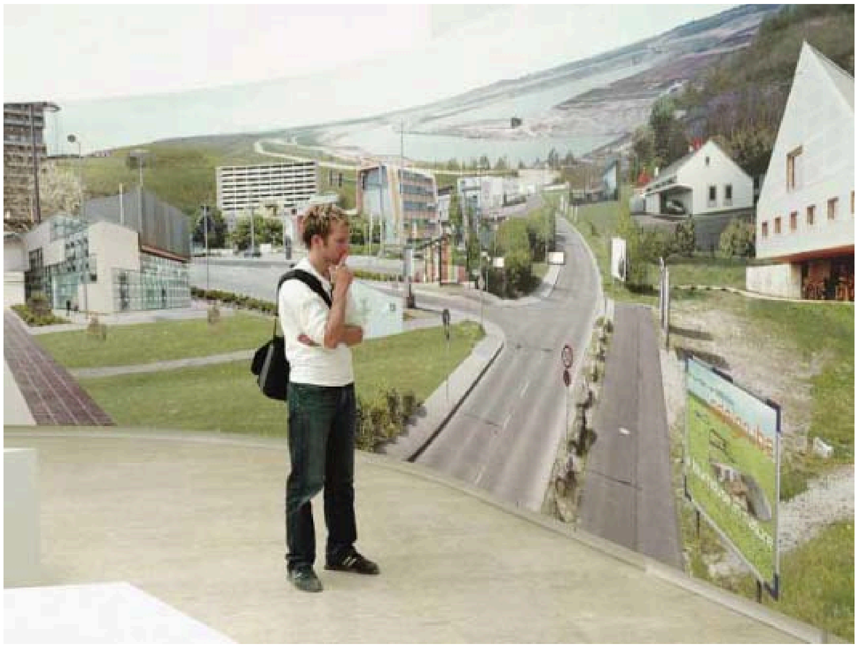
1. *Phillip Bernstein, FAIA, of Autodesk with Patricia Harrison and Brian Sexton of the State Department*
2. *Author and architect Charles Jencks*
3. *Architect Hans Hollein*
4. *MoMA's Paola Antonelli and Phaidon's Karen Stein*
5. *Laura Viscusi and Anna Schlesinger from RECORD*
6. *RECORD'S sales representative Bill Hague and his wife, Shirley*
7. *Tim Johnson of NBBJ and Karen Melk*
8. *Suzanne Stephens of RECORD, Phil Arnold of Scofield and Deborah Gallo of Autodesk*



In the German Pavilion, a large-scaled photographic mural designed by Cyan (Berlin) + Tobias Steinert illustrated 39 recent buildings (left). In the British Pavilion, Future Systems displayed a colorful model for a mixed-use tower in Berlin (below and detail, bottom).

National Pavilions in the Giardini, from another angle

By Jayne Merkel

In stark contrast to the mysterious interior of the gigantic old Corderie of the Arsenale, with its spotlighted models and flat screens glowing in a vast dark space, is the brightly lit, human-scaled German pavilion. Curated by Francesca Ferguson, the pavilion in the Giardini di Castello was filled with a realistic-looking colored photomural showing 39 new buildings in the landscape on the edges of German cities today. The wall-size photo collage curved around partitions between rooms in a continuous band, where suburban views flowed seamlessly into urban, reclaimed-industrial ones. The photos of the projects by 36 different firms had been inserted into the mural so that the viewer could see at a glance the impressively wide range of work being done in Germany today and how it could affect the new cityscape of sprawl "where architects rarely leave their marks."

With so many projects on view, however, it is hard to remember any one. Luckily, one of the most interesting firms, Sauerbruch Hutton Architects, also had a *Soundscape* installation in the Arsenale that showed its Henisgsdorf Town Hall. Here, photos simulated in three dimensions with old-fashioned red-and-green 3D glasses, and enlivened by very high fidelity recordings of the sound in the space, reminded the audience that architecture be could be a rich multisensory experience.

The British Pavilion, curated by Peter Cook, awarded nine practices with rooms of their own, and with atmospheres as divergent as British society itself is today. Life-size, two-dimensional, black-and-white photographs of the participating architects greeted the visitor at the entrance, before he read the wall text: "For the presentation of a discussible British architecture, I have deliberately avoided a single polemic, but have offered nine points of reference, 'nine positions,' all of them represented by architects who conspicuously know how to design rather well."

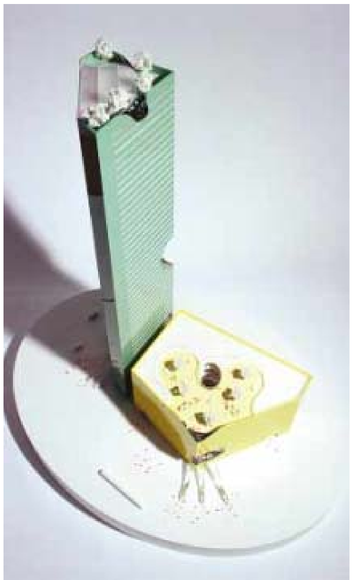
The most memorable gallery housed Future Systems' big, bright green, yellow, and red model of a proposed mixed-use tower for Berlin Alexanderplatz, intensely colored to contrast with the grim grayness of old East Berlin. Here the firm's well-known curves were confined to a few edges in plan and elevation and some "sculptural dents." Subtle though these rounded deviations are, they manage to have a surprisingly strong impact on the carefully articulated project. The model was surrounded with sketches, drawings, and photographs of recent works by Future Systems' Jan Kaplicky, Amanda Levete, and their colleagues.

Ron Arad transformed his space with barely graspable electronic images embedded in a gallery-size LED screen made of Corian laminate. Because the moving pictures and still sketches of a proposed "Upperworld" hotel for the top of London's Battersea Power Station have been implanted (with 37,127 fiber-optic pixels) deep within in the hard shiny wall, they appeared tantalizingly on, in, and under its dark translucent surface. Arad's glittery installation recalled the earlier work of Bernard Tschumi, his teacher at the AA in London. But Arad has updated the imagery with today's technology (or maybe tomorrow's) so he could dazzle viewers with recognizable images and give them a role in its creation—by simply dialing their cell phones. A spiral chandelier named *Lolita* displayed text messages that visitors to the Biennale could send by calling a designated number. The chandelier, which Arad created for Swarkovski, was made of a crystal pixel board. (It contained 2,100 crystals and 1,050 white LEDs.)

At the other end of the technological scale was John Pawson's necessarily still, restrained, and light-filled evocation of the Novy Dvur Monastery he is building for the Cistercian Abbaye Notre-Dame de Sept-Fons in the Czech Republic. Differently (but equally) low-tech were the three-dimensional, origami-like images of Asian cities C.J. Lim made of cardboard and thread.

Other participants in the British Pavilion, sponsored as usual by the British Council, were Adam Caruso and Peter St. John of Caruso St. John, Kathryn Findlay of Ushida Findlay, Richard Murphy, Ian Ritchie, and Gavin Robotham with Peter Cook. ■

Jayne Merkel's monograph on Eero Saarinen is due in April 2005 (Phaidon).



PHOTOGRAPHY: © FLORIAN BRAUN (TOP); SOREN AAGARD (RIGHT TWO)

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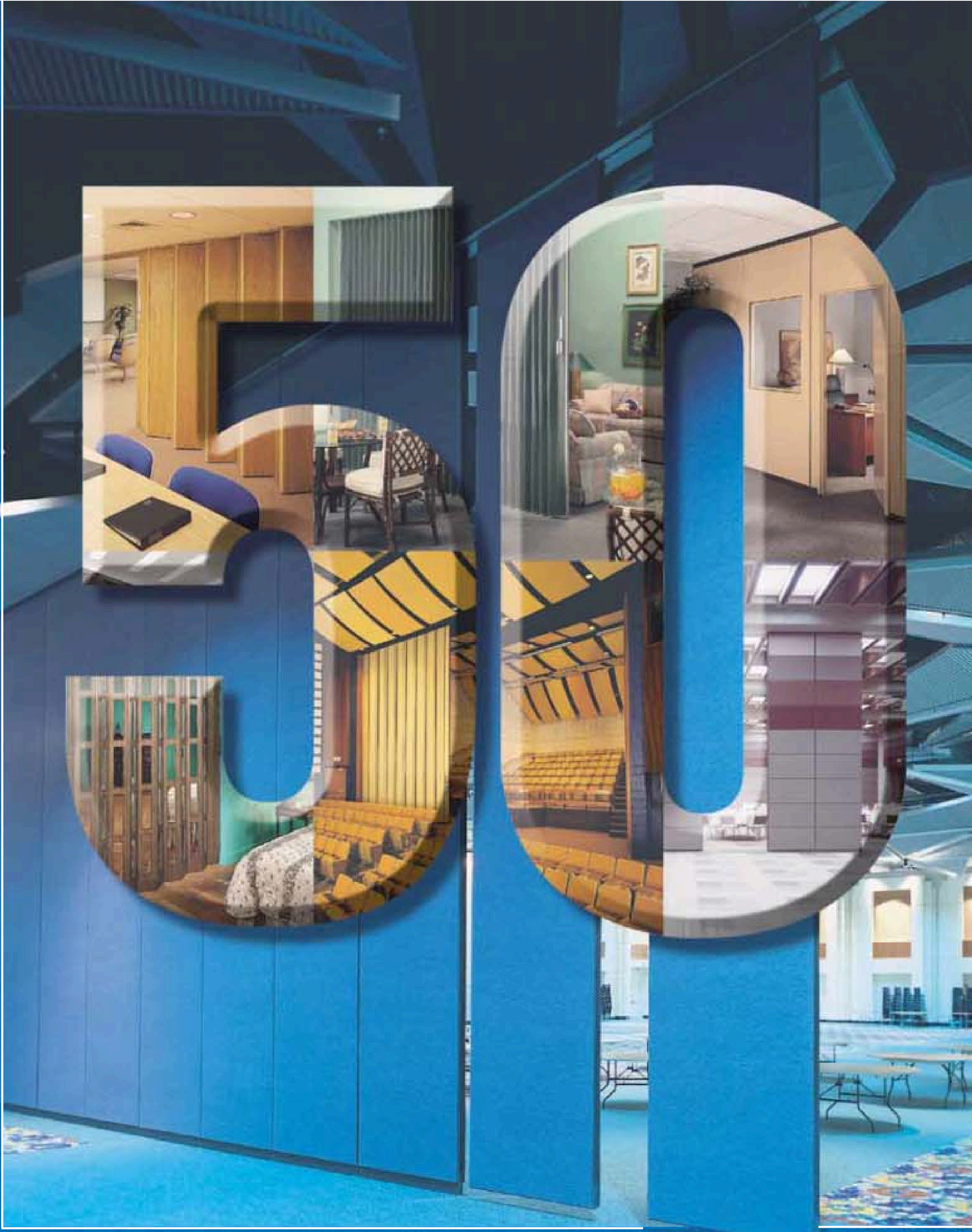

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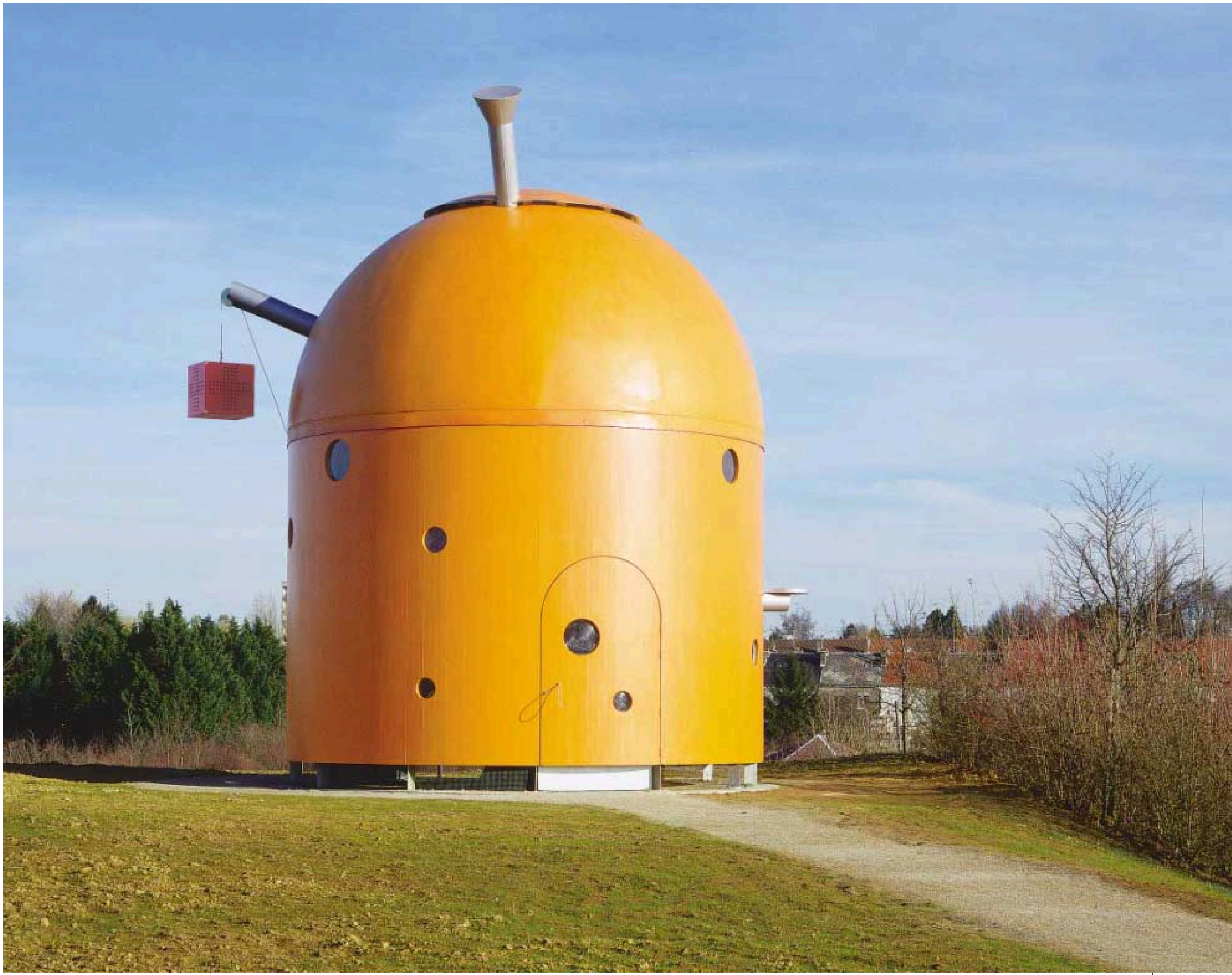


PHOTOGRAPHY: © ANDRÉ MORIN

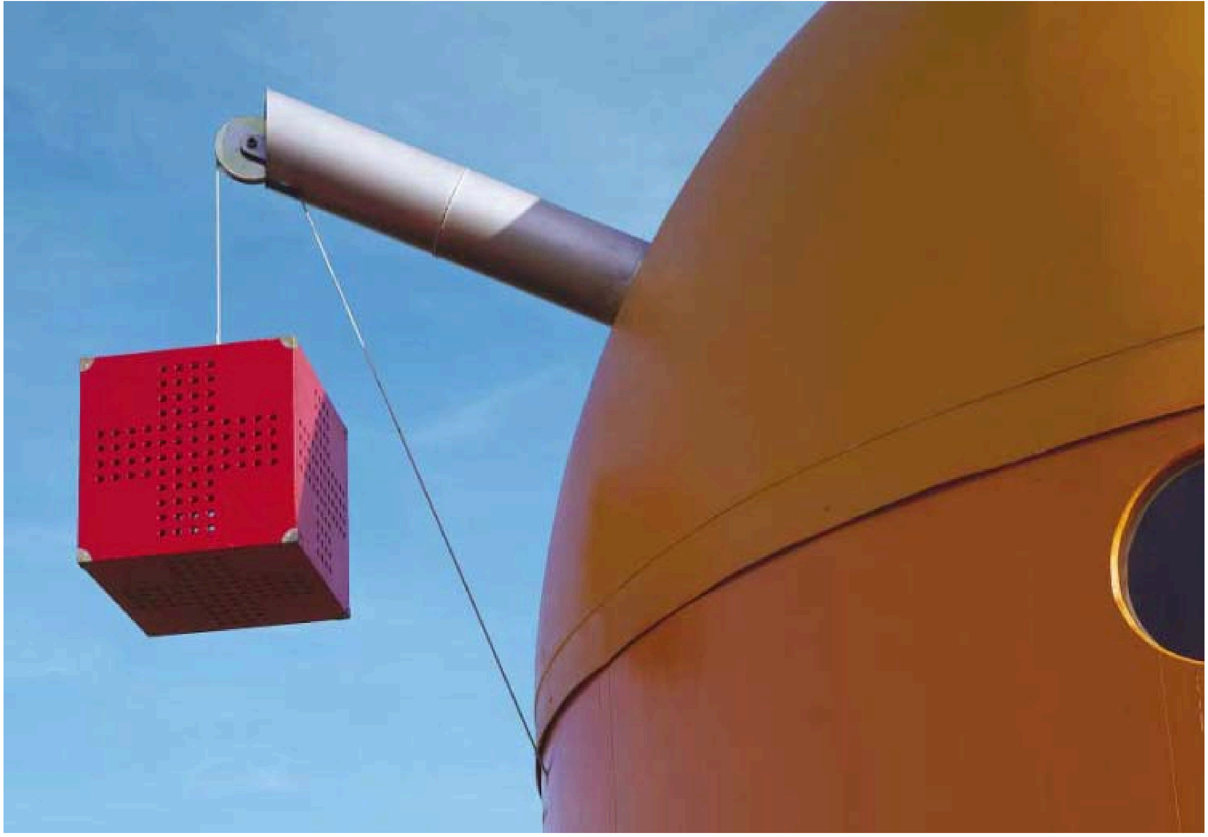
By Beth Broome

Dovecote acts as beacon to future pigeon fanciers

Few creatures rival the pigeon's ability to divide the world into two opposing camps: lovers of the bird and sworn enemies. Across the globe, attempts to cull pigeon populations have led to countless creative methods of extermination. But in the small French town of Caudry, near Cambrai, a temple of sorts has been erected in homage to this familiar fowl.

Twenty feet high and 16 feet wide, the *pigeonnier*, or dovecote, is a wood-and-resin-paneled capsule built to house domesticated pigeons and, in its role as an educational center, to rekindle interest in the dying tradition of raising and training the birds.

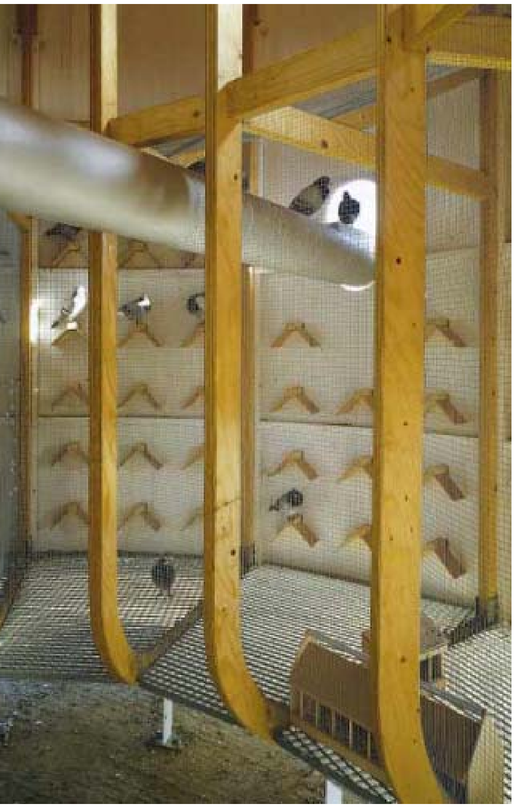
The dovecote is the first architectural project of Paris-based industrial designer Matali Crasset, who was commissioned for the job by a dove- and carrier-pigeon-breeders' association. The pigeon fanciers, as they are called, were referred to Crasset by Artconnexion, a contemporary arts association that organizes public art projects financed by the Fondation de France.



Matali Crasset's dovecote offers many amenities to its avian residents, such as a sanatorium (top) and ample perches (bottom, left). There is also a learning center for visitors (bottom, right).

The unique demands and constraints of a pigeon loft helped determine Crasset's approach to the project. Before setting to work, she spent several months talking with pigeon fanciers and observing life inside a typical pigeon loft, which in northern France is usually located in a homeowner's attic. In meeting the strict requirements, however, the bird breeders "didn't want to make something nostalgic," says Crasset. "They wanted to bring a message to the new generation: that this practice has a place in the future."

To allow for increased air circulation, Crasset elevated her dovecote off the ground and added a ventilation chimney on top. To further help pigeons feel in their element, she punched out small, circular windows that mimic the effect of light filtering into an attic, and outfitted the interior with a treelike, galvanized-steel structure and a wood skeleton resembling house framing. Suspended from the cupola—which was prefabricated for an astronomical observatory and adapted for this project—is a red wood box that serves as a hospital for sick birds being kept in quarantine. Educational exhibitions that change throughout the year line the wall of the dovecote, which is open to visitors by appointment.



In response to the windy environment of Caudry, Crasset chose a rounded shape, allowing the structure to be caressed by the wind rather than fighting against it. She also felt the capsulelike form helped communicate a sense of protectiveness and, at the same time, of possibility: "This pigeon loft could, in a way, take off," she says.

Not only does the freestanding dovecote move this type of structure away from its former domestic context and out into the public realm, but as an iconic element in the landscape, it acts as a literal beacon, bringing a new visibility to an age-old activity. "Understanding the constraints of a project, you can make a jump, instead of just a step," says Crasset. "You can take things a bit further—not to make a revolution, but to create an evolution." ■

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The 8th Annual BW/AR Awards: Design solutions that enhance business success

WINNERS

1. **Limerick County Hall**
   Photo: © Michael Moran
2. **Britomart Transport Centre**
   Photo: © Patrick Reynolds
3. **Ehime Prefectural Budokan**
   Photo: © Kenichi Suzuki
4. **Humane Society/SPCA of San Antonio and Bexar County**
   Photo: © Paul Bardagjy
5. **James M. Wood Community Center**
   Photo: © Ronald Moore
6. **Finn Center, Community School of Music and Arts**
   Photo: © Tim Griffith
7. **Fisher Pavilion at Seattle Center**
   Photo: © Steve Keating
8. **MoMA QNS**
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9. **Iron Studio, Penland School**
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10. **Israeli Foreign Ministry**
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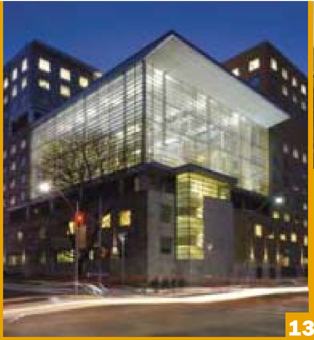
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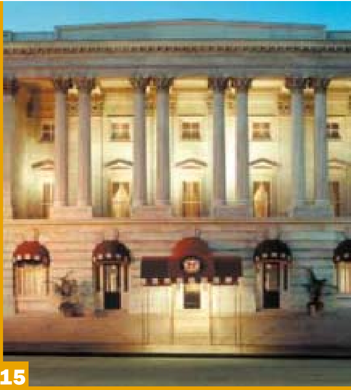
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FINALISTS

11. Quintessa Winery
Photo: © Richard Barnes

12. FDNY Fire Zone
Photo: © Michael Moran

13. University Health Network/ The Toronto Hospital New Clinical Services Building
Photo: © David Whittaker

14. General Mills, World Headquarters
Photo: © George Heinrich

15. Hotel Monaco (Tariff Building)
Photo: © Kimpton Group

16. Marion Oliver McCaw Hall
Photo: © Fred Housel

17. Ford Rouge Center
Photo: © Ford Photographic

18. San Francisco Ferry Building
Photo: © Richard Barnes

19. Brentwood Skytrain Station
Photo: © Nic Lehoux

EDITORS' CHOICE

20. Satellite Operations Facility & Administrative Offices
Photo: © Morphosis/Einhorn Yaffee Prescott

21. Montclair Lofts
Photo: © Oppenheim Architecture

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21

By Jane F. Kolleeny and Audrey Beaton

Great designs demand great clients," observed Moshe Safdie, FAIA, jury chair of this year's BW/AR Awards, invoking Louis Sullivan when describing the primary condition for the winning projects submitted in this year's program. Architects cannot do their best job without a client participating in and understanding the aims of a design. Clients can't use architecture to its best advantage without architects understanding the clients' business-driven mandates. Because collaboration plays so valuable a part in determining winning projects, jury members in the program are drawn from both the business/institutional communities and the design professions to assure a balanced vote.

In the submission narratives, architects describe how their designs respond to the needs of clients, and clients provide concrete data on how design facilitated better business. Business here is broadly defined to encompass any entity that serves the public and seeks to succeed according to a variety of criteria, which may include employee retention, increased quality output, or enhanced publicity or branding. In the end, all the submissions cited on the following pages get to the heart of what collaboration is really about. Herein find the 2004 winners and finalists of the Business Week/Architectural Record Awards program.

For more information or to request a call for entry for the 2005 BW/AR awards, send an e-mail to bwarawards@aia.org or call 888/242-4240.

AIA's 2004 Business Week/Architectural Record Awards winners illustrate the entrepreneurial spirit in both management technique and building design.

AN ATRIUM BREATHES NEW LIFE INTO GOVERNMENT

Program: The local government sought to create a civic building that would facilitate better service, accountability, transparency, and easy access to information for the public. The design team sought to provide comfortable working conditions for the staff, while reducing energy consumption in the building.

Solution: A glass and timber atrium, lined with counters where people can meet with local authorities, provides an accessible and efficient interface between the public and the government while also serving as the "ventilation lung" of the building, bringing fresh air into office spaces. The building uses only natural energy resources. Without a mechanical plant or air-conditioning unit installed in the structure, it has lower CO_2 emissions. Special light fittings, designed by the architect with daylight sensors and dimmable ballasts, allow less artificial light to be used, and the building's prominent bris-soleil is constructed of timber from a replenishable source. The staff takes pride in its innovative home and the new institutional identity that it projects. The demonstrated success of the contact it allows between the government and the public is admired throughout Europe.

> **"An attention to detail emanates from the building . . . indigenous materials used in a moving way."** — *FRANCES HUPPERT, FAIA*

Project: *Limerick County Hall, Limerick County, Ireland*
Architect: *Bucholz McEvoy Architects*
Client: *Limerick County Council*
Key Players: *John Sisk and Company (general contractor); Michael Punch & Partners (structural); Buro Happold (building services)*

PHOTOGRAPHY: © MICHAEL MORAN

AN URBAN CENTER TAKES ROOT AS AUCKLAND'S HISTORY IS PRESERVED

Program: In order to limit traffic congestion and reduce pollution, Auckland needed to develop a major public transportation hub. The city sought a prominent train station to serve as a focal point for supplemental transportation initiatives, including an upgrade of ferry terminals and bus stops. The project would serve as a catalyst for regenerating the city's urban core and fostering civic pride.

Solution: The architects' design called for the renovation and redevelopment of the city's central post office as the main hub, linked by a transparent glass structure to a new, one-of-a-kind underground diesel train station. The sensitive restoration of the historic structure and grand scale and modern materials of the new station form a visually dynamic partnership. Sculpture and artwork from local residents enhance the station's public streetscape and further its role as a civic ally. In less than a year since the facility's opening, public transportation use has risen by 30 percent. The station's flexible design enables it to remain vital as train capacity continues to rise, new stations are built, and track improvements proceed throughout the area.

> "The architects devoted tremendous energy to creating a building that overcame many technical obstacles." — *DOUGLAS GARDNER*

3
TRACKS LIVE
2

Project: *Britomart Transport Centre, Auckland, New Zealand*
Architect: *JASMAX; Mario Madayag Architecture (associate architect)*
Client: *Auckland City Council Britomart Project Group*
Key Players: *Opus International Consultants (engineers); Downer Construction (general contractor); Beca Carter Hollings & Ferner (project managers); WT Partnership (quantity surveyor); Salmon Reed (heritage architects)*

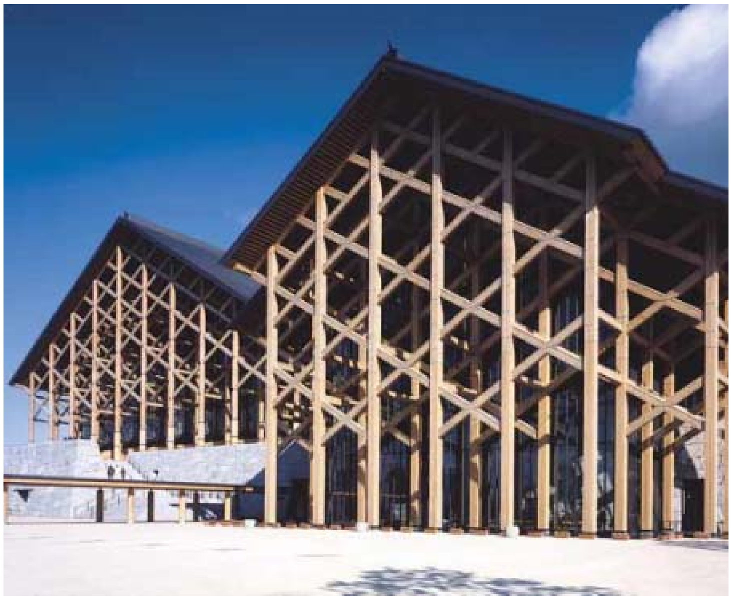
PHOTOGRAPHY: © PATRICK REYNOLDS

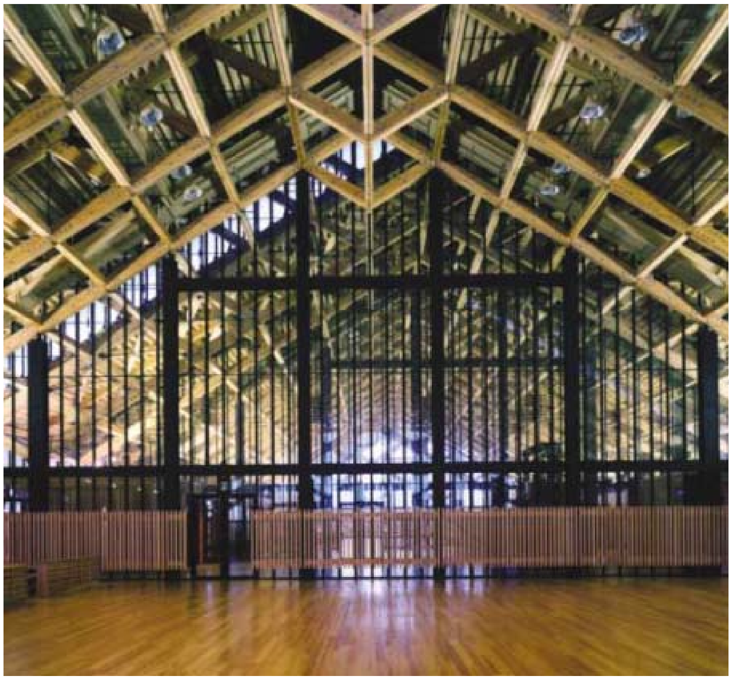
TRADITIONAL DETAILING INSPIRES THIS ATHLETIC FACILITY

Program: The client envisioned a state-of-the-art athletic facility that would improve the institution's overall national and international prominence and increase enrollments and visitors. They wanted a building that would be highly visible and sustainable. They also sought a facility that reflected local traditions and cultures, involved the community during the design process, and stimulated the local economy by using available resources.

Solution: Featuring one of Japan's largest wooden gable roofs, this facility welcomes visitors into a vast public space hosting athletic activities, cultural events, conventions, and festivals. The two new buildings are made almost entirely of indigenous materials. The roof's cedar truss beams, whose diamond pattern is reminiscent of traditional Japanese clothing designs and family crests, were all produced locally. Similarly, the stones used for the floor and the clay and ceramic tiles used for the roofs are from the immediate area. Product supply for the building's construction netted a sizable income for the economy. Five months after completion of the facility, the number of visitors increased nearly sixfold, with 20 major events having occurred in the space, including one international athletic competition.

> **"It's like an Olympic Village. The traditional Japanese temple vocabulary elevates it to a romantic framework."** — *ALLISON WILLIAMS, FAIA*





Project: *Ehime Prefectural Budokan, Matsuyama City, Ehime, Japan*
Architect: *Ishimoto Architectural & Engineering Firm*
Client: *Ehime Prefecture*
Key Players: *Shigeru Ban/Van Structural Design Studio (structural); Takenaka Corporation (general contractor)*

PHOTOGRAPHY: © KENICHI SUZUKI (TOP RIGHT); ATSUSHI NAKAMICHI (MIDDLE RIGHT); SATORU MISHIMA (BOTTOM LEFT); ATSUSHI NAKAMICHI (BOTTOM RIGHT)

WINNER

A COMMUNAL FEEL DELIGHTS INHABITANTS, CLIENTS, AND STAFF

Program: Cold, impersonal, dank, and odiferous animal shelters are typically unpleasant both for animals and the employees and volunteers who care for them. The program for this new facility sought to use design to reverse this pattern. Higher adoption rates, lower animal return rates, and increased retention and recruitment of employees were among the goals of the facility.

Solution: The architects designed the new shelter like a retail complex. They situated the building on a prominent site in an affluent area of town. A large front porch serves as a visual billboard, inviting passersby to come inside. Consisting of several small buildings organized around a central courtyard, the shelter's scale enhances the communal feel. Large, sloping roofs respond to the hot Texas climate, producing a comforting residential feel. The passage through these buildings is like meandering through the aisles of a store. The more sought-after goods—in this case, puppies and kittens—are reached only after traveling through the rest of the space where adult animals reside. Since its opening, adoption rates are up 95 percent, and three times as many adult dogs and cats have been adopted than before. The facility's educational center is constantly booked thanks to enhanced public awareness of the shelter and its initiatives.

"A result of very direct programming, a desirable location, and really nice buildings." — *RAND ELLIOTT, FAIA*

Project: *Humane Society/SPCA of San Antonio and Bexar County, San Antonio, Tex.*

Architect: *Alamo Architects*

Client: *Humane Society/SPCA of San Antonio and Bexar County*

Key Players: *Tom Green and Company (m/e/p); Fisher Engineering (civil); WSC Structural Engineers (structural); John Meister Landscape Architecture (landscape); Connolly Architects (shelter design consultant); Metropolitan Contracting (general contractor)*

PHOTOGRAPHY: © PAUL BARDAGJY

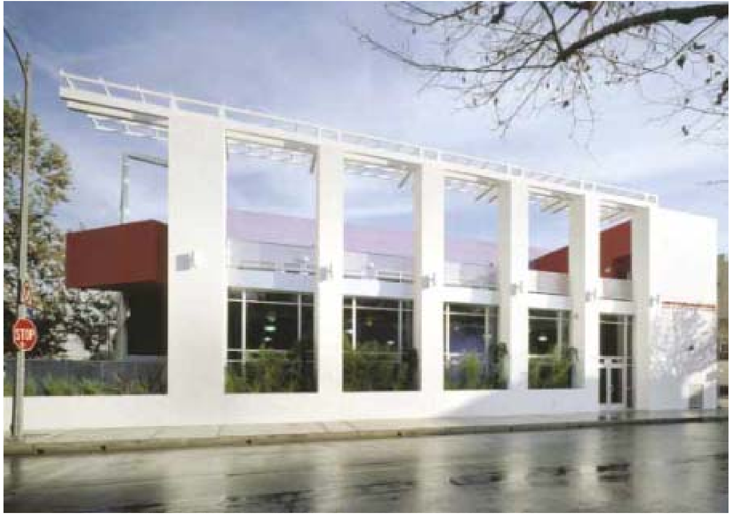
WINNER

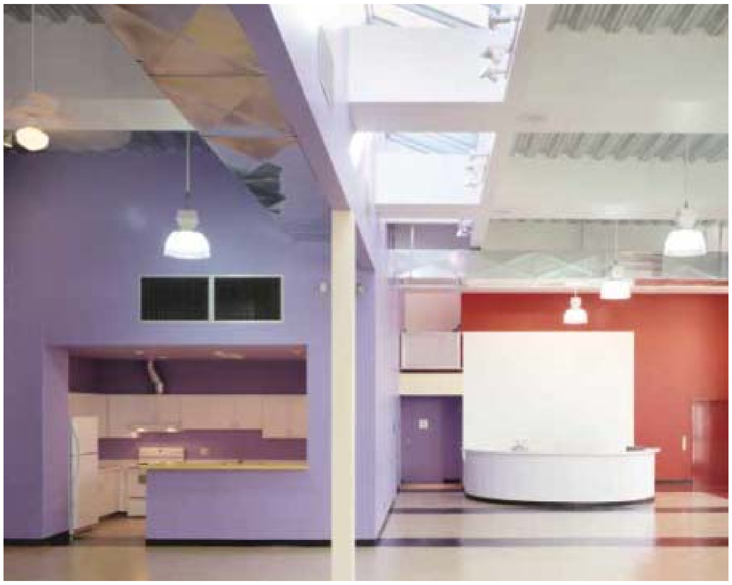
AN INNER-CITY STRUCTURE BUILDS COMMUNITY AND REBUILDS LIVES

Program: Located in Los Angeles's Skid Row, this community center aimed to use architecture as a tool for civic and social betterment. The client firmly believes that everyone, no matter what their circumstances, is entitled to a safe, clean, well-designed space. An earlier collaboration between the architect and client resulted in a successful homeless drop-in center and park. However, with nearly 1,400 homeless people visiting daily, the need for an interior community space quickly became evident.

Solution: Regarded as a "living room" for Skid Row, the project serves as a safe harbor, aiding the recovery of addicts and providing for the homeless community at large. The building is sited at the edge of the park, welcoming the neighborhood inside with its prominent staircase, and presenting an air of civic grandeur with its 40-foot-high colonnade. The interior spaces are flooded with light. The building's meeting room, office space, and rooftop garden accommodate weekly meetings of seniors, 12-step recovery programs, art workshops, chess clubs, poetry readings, and biweekly health examinations. Using color and light, civic style, and humane scale, the architect and client prove that architecture can empower and build community where there was none.

> "Often these centers are just a roof. They don't have the emotional power of architecture, but this one really does." — *RAND ELLIOTT, FAIA*



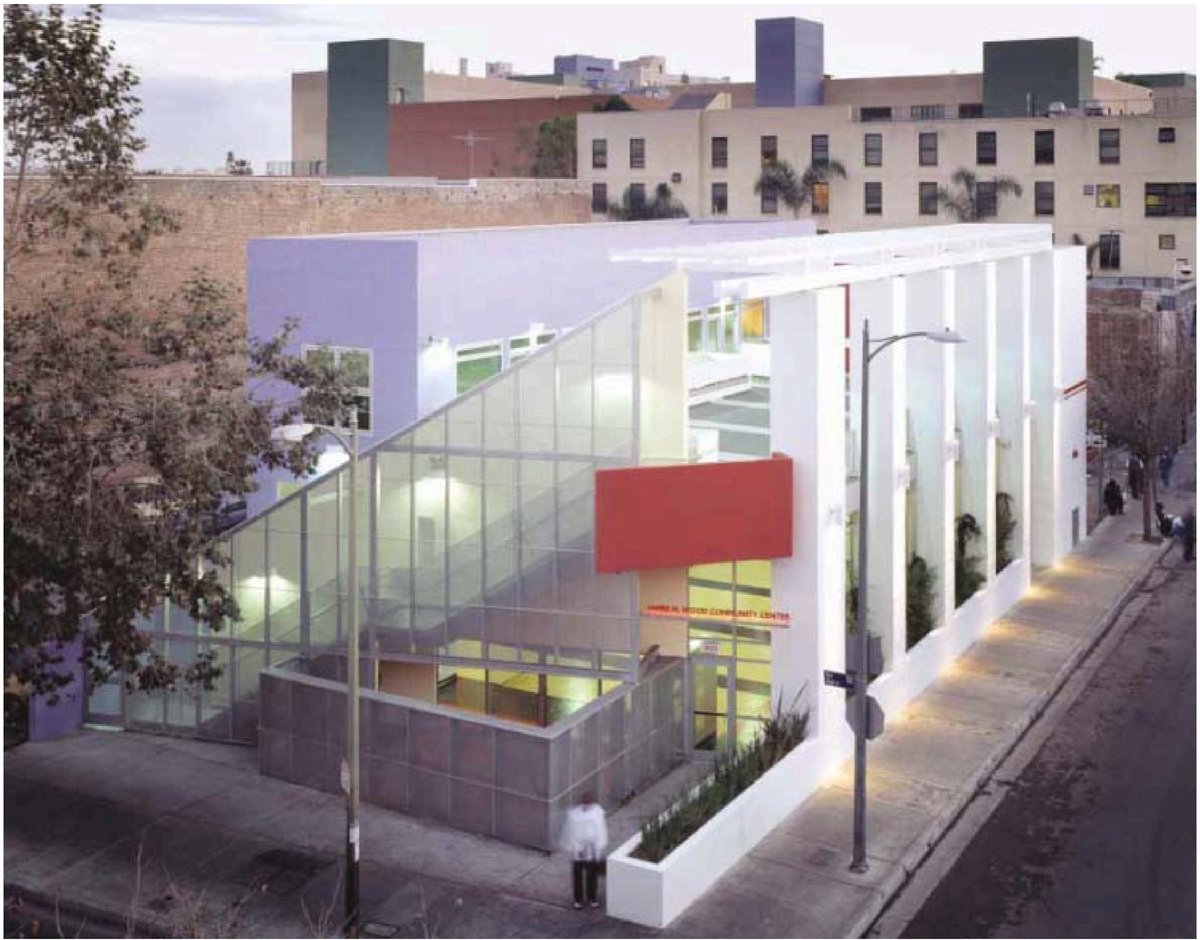


Project: *James M. Wood Community Center, Los Angeles, Calif. [RECORD, September 2003, page 87]*

Architect: *Lehrer Architects*

Client: *SRO Housing Corporation*

Key Players: *Reiss, Brown, Ekmekji (structural); Ideas for the Built Environment (mechanical); Agoura Electric Company (electrical); Mia Lehrer + Associates (landscape); Robert F. Vairo Construction (general contractor)*



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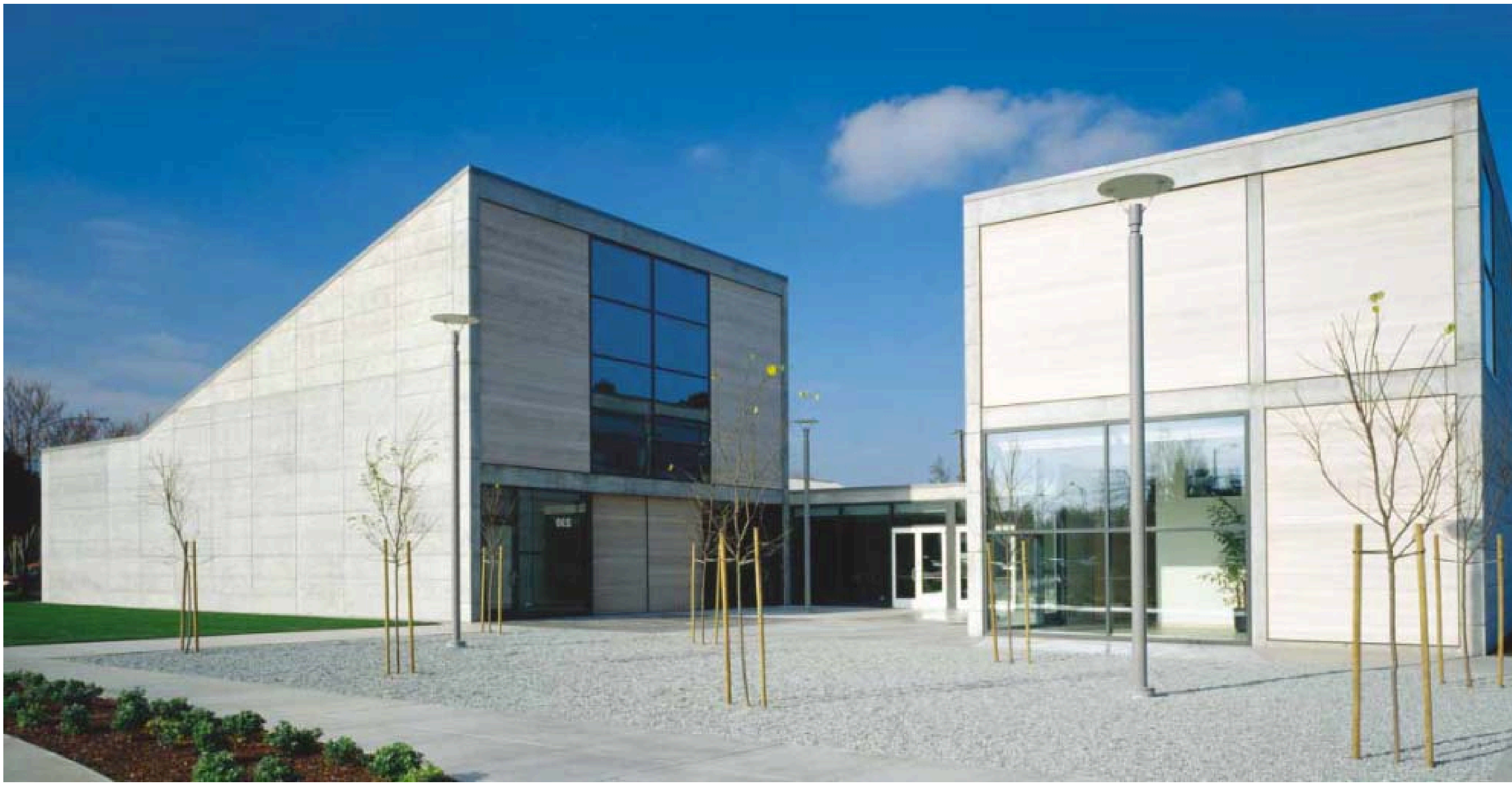
A SCHOOL'S NEW HOME SUCCEEDS IN ITS "ARTS FOR ALL" MISSION

Program: For 30 years, this arts education organization, the largest of its kind in the region, was housed in six temporary structures. Seeking to reach more members of the community and improve its quality, the client desired a permanent home. The new building needed to be functional and inspirational. Programmatically, it required acoustical efficiency and a flexible plan. Formally, it desired to embrace the community and encourage all forms of art.

Solution: The architect designed the new school as a low building planned around a courtyard. Sloping roofs provide a sense of openness and facilitate acoustic integrity, and clerestory windows flood the building with light. Built of poured-in-place concrete, the building minimizes noise from nearby highways, while wood infill gives it warmth. Before, the school turned away students because of lack of space; now it offers twice the space of its previous home and is conveniently located near public transportation. With 17 state-of-the-art private studios, numerous classrooms, a ceramics studio, exterior performance space, and a 200-seat concert hall, the school's student body, faculty, and programs have all increased.

"A beautifully cast-in-place concrete structure using natural materials creates a very successful sense of place." — *FRANCES HUPPERT, FAIA*

Project: *Finn Center, Community School of Music and Arts, Mountain View, Calif.*
Architect: *Mark Cavagnero Associates*
Client: *Community School of Music and Arts*
Key Players: *Western Investment Management (project manager); Murphy Barr Curry (structural); C&B Consulting Engineers (m/e/p); Stephen Wheeler Landscape Architects (landscape); Charles Salter Associates (acoustical)*



PHOTOGRAPHY: © TIM GRIFFITH

WINNER

AN UNOBTRUSIVE BUILDING PROVES THAT LESS IS MORE

Program: A public/private partnership sought to create a new urban park and exhibition hall that could be used as a multipurpose public facility and communal gathering place for an estimated 900,000 people a year. The partners sought to redevelop an existing two-city-block site by demolishing a pavilion that sat dormant and constructing a new facility that would be sustainable, environmentally friendly, and highly adaptable.

Solution: The pavilion was intended to satisfy many functions and serve various user groups, so the design process was a collaborative one among client, campus institutions, organizers of major festivals, and representatives of cultural groups. Because everyone desired to provide a high ratio of open, green space to building/paved surfaces, a "subterranean" design solution made sense. Efficient and sensitive planning placed 14,000 square feet of building space below a rooftop plaza. The glazed north facade of the sunken building uses roll-up doors to open onto an adjacent green and connect the interior exhibition space to a fountain beyond. The green was regraded into a bowl shape to better accommodate large-scale public gatherings. Burying the building below ground reduced the structure's thermal load and lowered lighting energy and heat costs, while the roll-up doors provide natural ventilation, allowing the pavilion to operate without air-conditioning for most of the year.

> "It is a highly sustainable structure with an extremely heavy public use of the rooftop plaza." — PAULA S. WALLACE

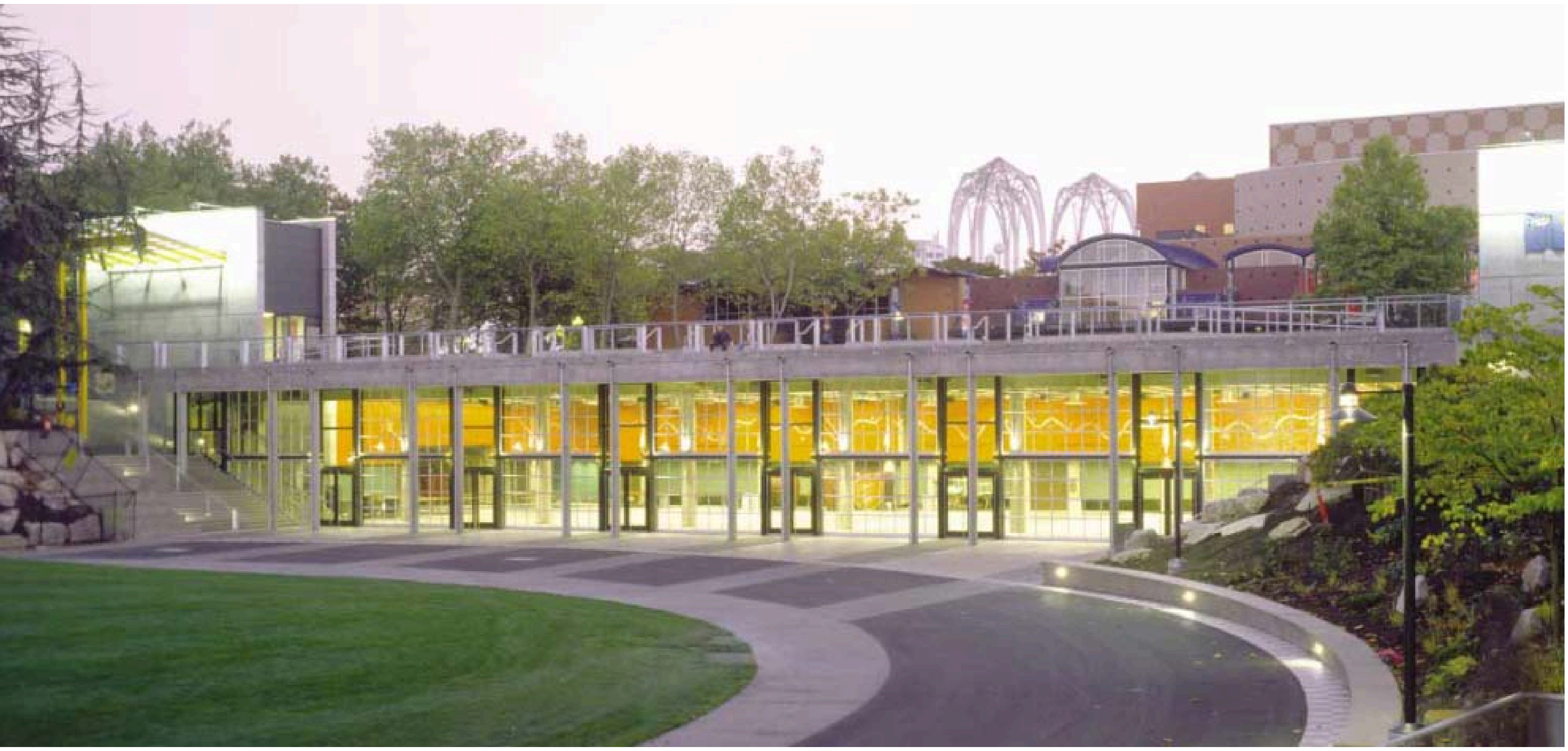
FISHER PAVILION

Project: *Fisher Pavilion at Seattle Center, Seattle, Wash.*

Architect: *The Miller/Hull Partnership*

Client: *City of Seattle, Seattle Center*

Key Players: *AKB Engineers (structural and civil); The Greenbusch Group (mechanical/acoustical/audio); SiteWorkshop (landscape); Howard S. Wright Construction (general contractor)*



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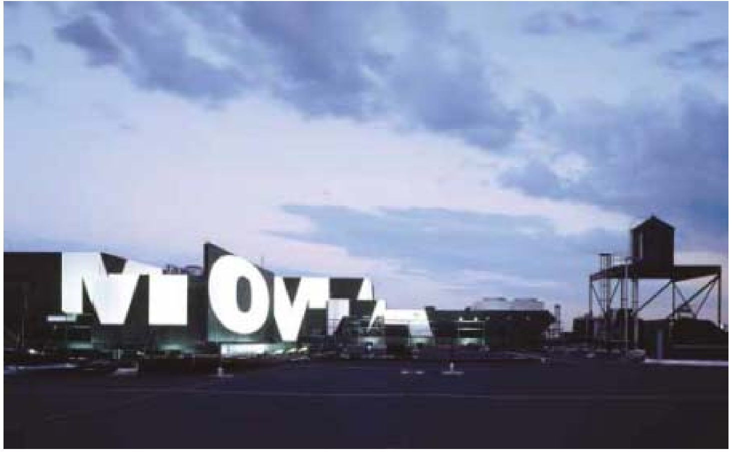
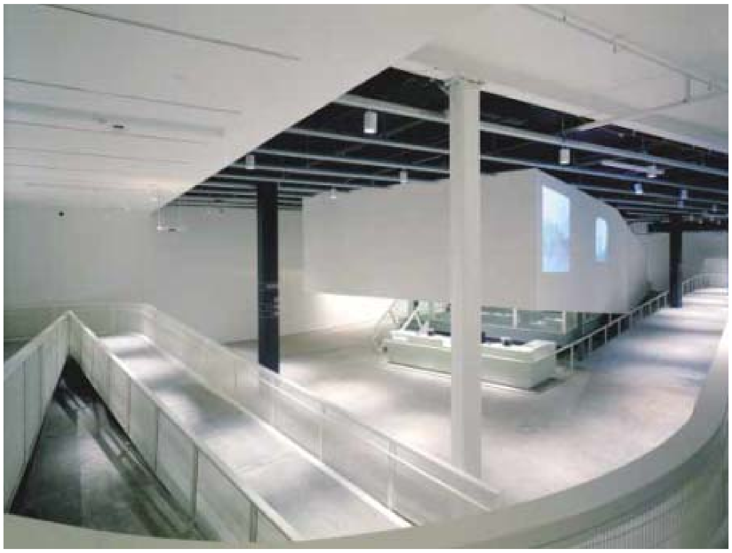


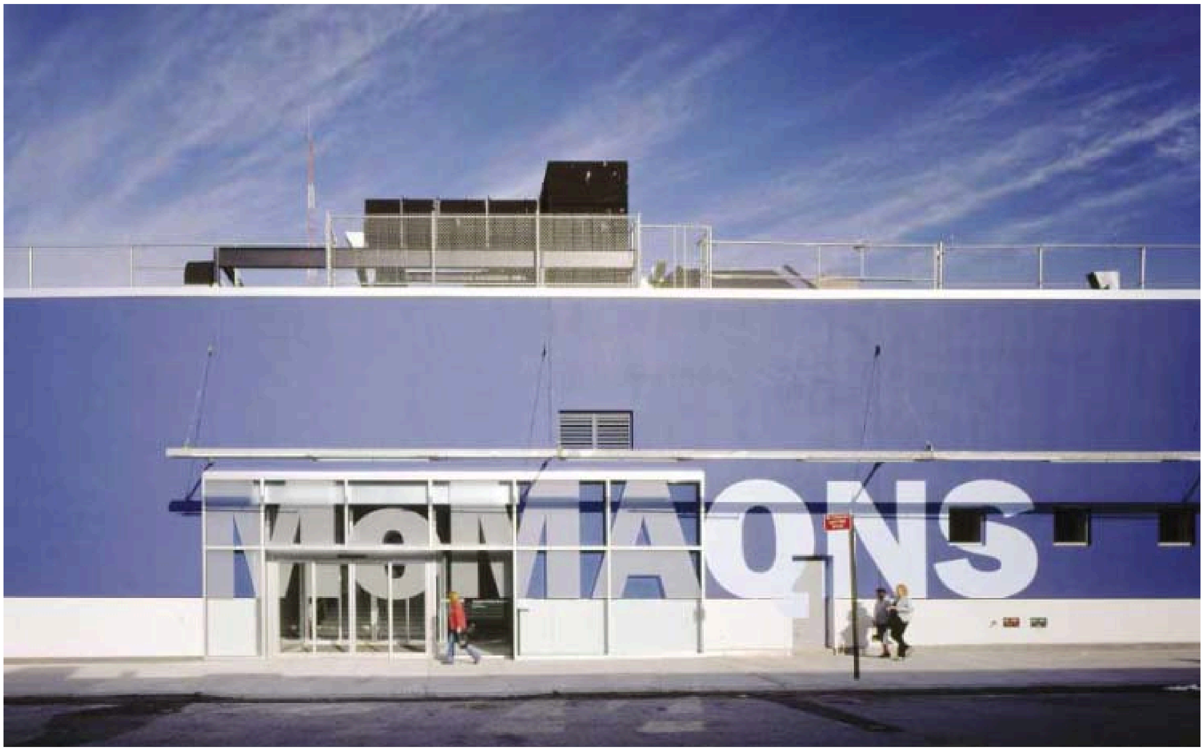


A MUSEUM GAINS VISIBILITY AS ITS HOME EVOLVES

Program: In the middle of an $858 million capital campaign, the Museum of Modern Art needed to create a temporary space to house the museum's collection that would maintain its identity and membership loyalty while its permanent location closed for renovation and expansion. The new building would serve as a temporary exhibition space in a visually inventive way, but be able to quickly convert back to its original program as a site for museum support, preservation, and collections storage.

Solution: The design team transformed a former staple factory into a museum facility with a highly visible public face. Movement became a central theme for the design of the building, from the transformation of the museum's recognizable logo seen from the New York City subway to an elevated entry sequence to the ticket area, coat check, and public restrooms, along which a visitor can view the procession throughout the building. State-of-the-art conservation labs, digital-imaging studios, archives, and storage facilities reflect the institution's high ideals and will continue to be used at this site after the museum returns to its permanent home. The success of the project is easy to see. The large number of visitors to the new galleries exceeded projected estimates, the staff enjoys working in the new space, and museum membership has remained steady despite the move.

> "MoMA created a significant presence in an unlikely location." — *BETSY COHEN*

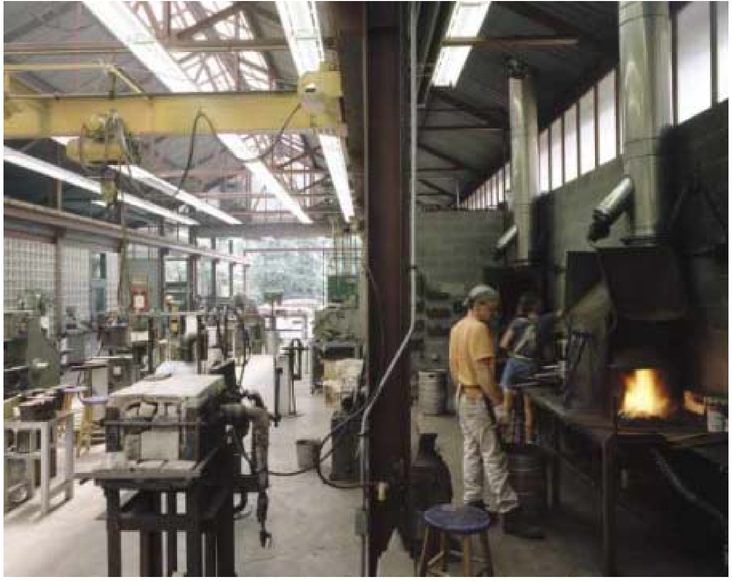


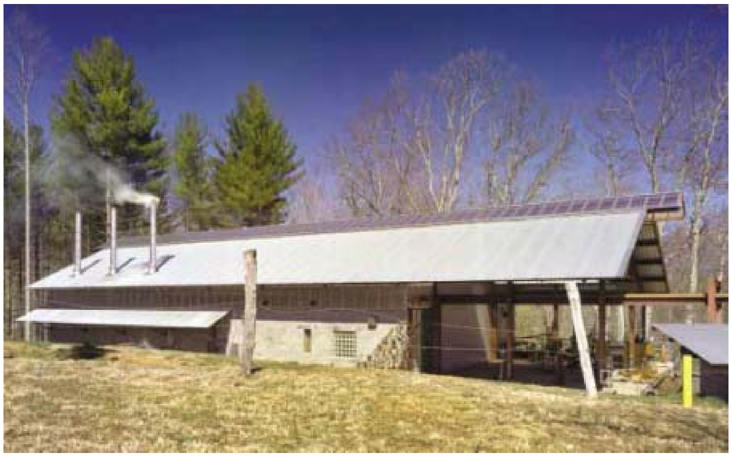
Project: *MoMA QNS, Long Island City, N.Y. [RECORD, August 2002, page 106]*
Architect: *Cooper, Robertson & Partners; Michael Maltzan Architecture (associate architect for lobby and roofscape)*
Client: *The Museum of Modern Art*
Key Players: *Turner Construction (construction management); Lori Weatherly Interiors (interior design); Goldman Copeland Associates (m/e/p); DeNardis Associates (structural)*

PHOTOGRAPHY: © CHRISTIAN RICHTERS, EXCEPT ROBERT BENSON (MIDDLE RIGHT)

HI-TECH DESIGN INVIGORATES AN ANCIENT ART

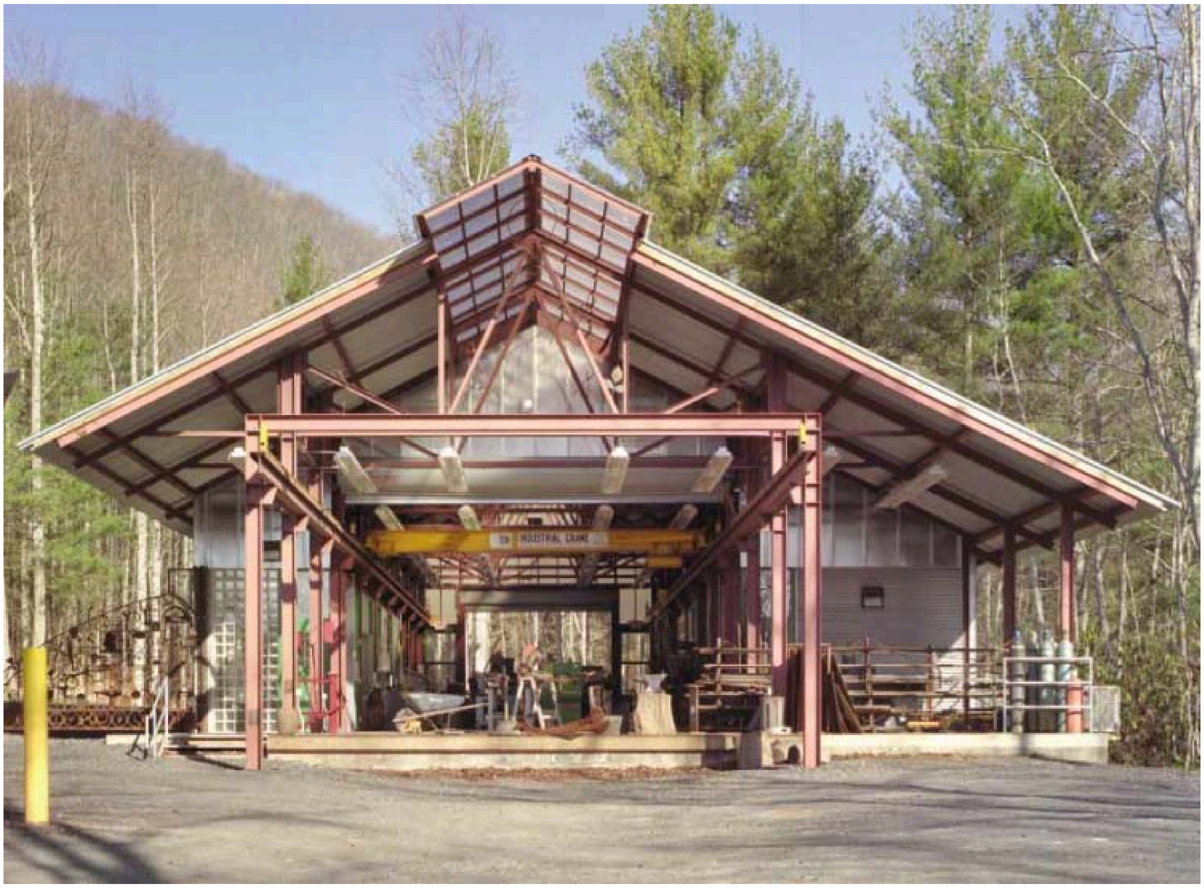
Program: Iron making and blacksmithing, two of the most popular programs at the Penland School of Crafts, had outgrown their studio. A new state-of-the-art facility needed to demonstrate the school's commitment to the trades and offer plenty of natural light and good ventilation. The space required a flexible design to accommodate future change in the technology and teaching of the two arts, and to promote an open dialogue between teachers and students.
Solution: The architect and his team attended an intensive three-day course in iron making in order to better understand the art and to afford the school an opportunity to collaborate on the design of the new studio. A repetitive, rigid-frame structural module was used as a design element for the new, 5,500-square-foot space. Roll-up doors and outdoor teaching areas open the studio to mountainside views. Skylights bring natural light into the space and promote energy conservation. An open plan allows for increased transparency throughout the facility and visual connections between teachers and students. Glass-block walls provide acoustical separation where needed. The new studio increased the school's public recognition, prompting enrollment to skyrocket 100 percent over previous years, raising the level of expectation for the other departments on campus.





> **"Designed in a minimal way, the project features state-of-the-art machinery enhancing the craft of blacksmithing."** — *PAUL HERZAN*

Project: *Iron Studio, Penland School of Crafts, Penland, N.C. [RECORD, October 2002, page 136]*
Architect: *Frank Harmon Architect*
Client: *Penland School of Crafts*
Key Players: *Synergetics (structural); Ernest Myatt (mechanical); Appalachian Building Services (general contractor)*



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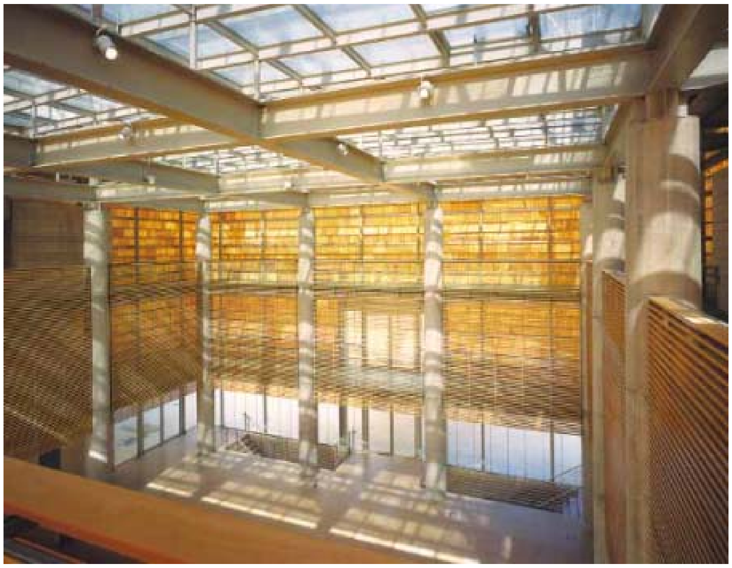
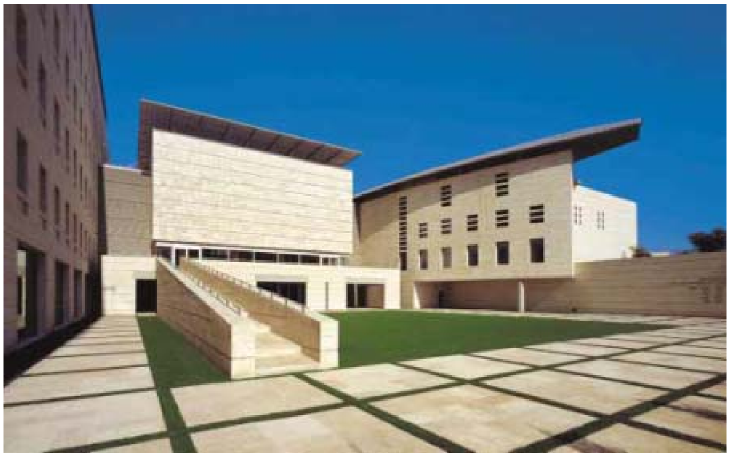
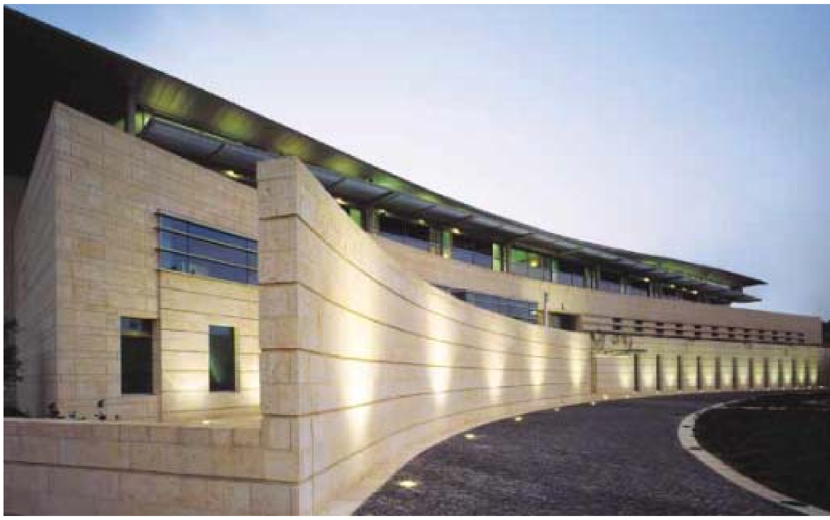
WINNER



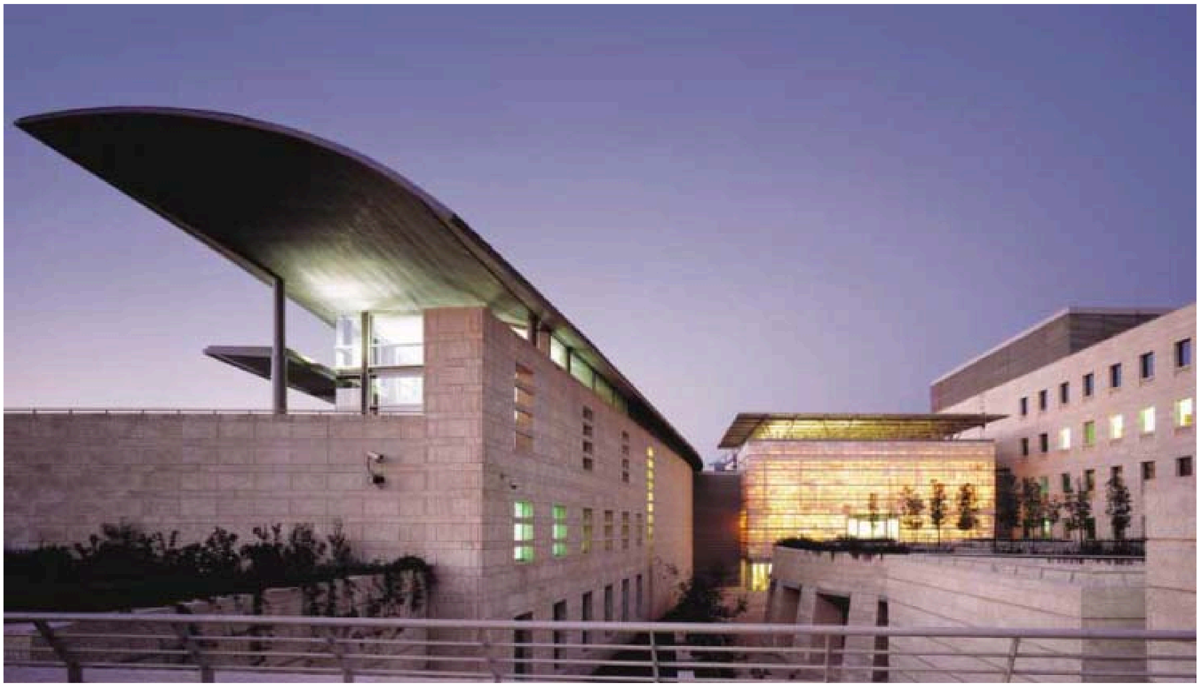
DIGNITY AND LIGHT REDEFINE SAFETY

Program: Formerly housed in a series of one-story buildings, the Israeli Foreign Ministry hoped to consolidate its offices into a single structure. The new facility would host efficient and flexible administration offices, provide space for events and ceremonies, and serve as a model of security in the Middle East. The project needed to contextually fit into the wall-like row of buildings that surround the site, maintaining the intimate scale of its predecessor. **Solution:** Despite a high level of security, the new ministry appears inviting and dignified. An elegant and practical solution eliminated the need for security barriers. Instead, plantings obscure views and block access to the entrance, and a sloping arrival court creates separate entrances for dignitaries and officials (on the lower level) and staff (on the upper level). A soft yellow glow emanates from the building's central reception hall, projecting a visibly elegant image. Despite its striking appearance, the hall is able to withstand an explosion, thanks to innovative aluminum spring clips that enable its onyx-panel cladding to retract and recoil. A teak screen on the mezzanine walkway of the reception hall protects against inward flying debris. The staff feels comfortable and secure in their new offices.





> "Demanding security issues were integrated into the architecture so they became either environmental assets or invisible." — *MOSHE SAFDIE, FAIA*



PHOTOGRAPHY: © TIM GRIFFITH

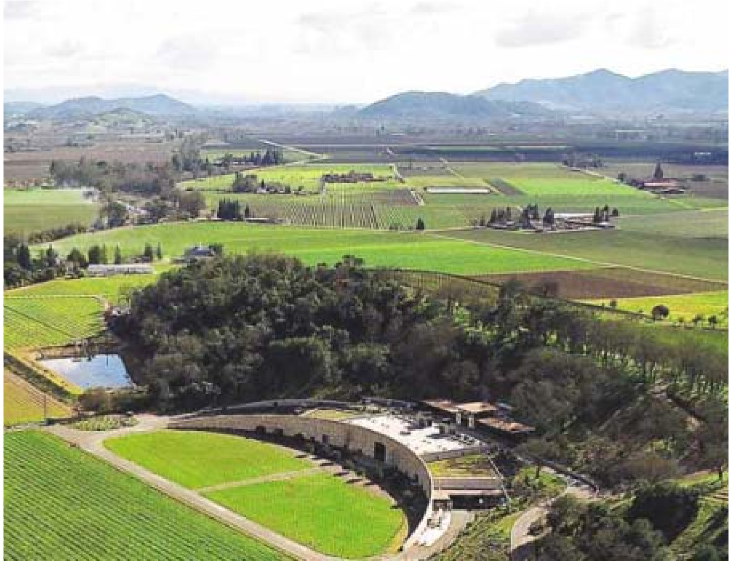
Project: *Israeli Foreign Ministry, Jerusalem [RECORD, June 2003, page 120]*
Architect: *Diamond and Schmitt Architects; Kolker, Kolker Epstein Architects (associate architect)*
Client: *Israeli Foreign Ministry*
Key Players: *E. Rahat & Associates (construction management); Yaron-Shimoni-Shacham Consulting Engineers (structural); The Mitchell Partnership (mechanical); Aarenson Construction (general contractor)*

Nine finalists provide novel approaches to design

What works for a corporation undertaking the design of new headquarters can also work for a museum, a winery, or a mission-critical facility. Good design has a powerful impact on any type of building and the activities it accommodates, very often demonstrated by measurable results. Illustrating this point are nine award finalists and two Editors' Choice winners for unbuilt projects, which join our 10 winners. *Jane Kolleeny and Audrey Beaton*

NATURAL BEAUTY AND FLEXIBILITY DISTINGUISH THIS WINERY

After years of transporting his grapes off-site for crushing, fermentation, and bottling, the owner of this vineyard estate wished to build a full-service production and visitor center that would maximize production efficiency, enhance sales and marketing, and reinforce the quality of the wine produced. The team of owner, winemaker, and architect worked closely to develop a master plan. They created a building design sympathetic to the Napa Valley location and flexible enough to accommodate changes in production capacity and winemaking techniques. The result is a facility that successfully integrates landscape, architecture, and winemaking. The building is nestled into a natural hillside, its elegant semicircular shape reflecting the existing contours of the terrain. The design illustrates how gravity can be used as a tool in the winemaking process. Grapes are brought to an upper "crush terrace," then funneled through roof hatches into fermentation barrels below. Visitors are allowed to witness the entire winemaking procedure, starting in the excavated wine cave and finishing in the tasting room and wine library.



Project: *Quintessa Winery, St. Helena, Calif.*
Architect: *Walker Warner Architects*
Client: *Huneeus Vintners*
Key Players: *Stone Interiors (interiors); Lutsko Associates (landscape); Cello & Maudru Construction (general contractor)*

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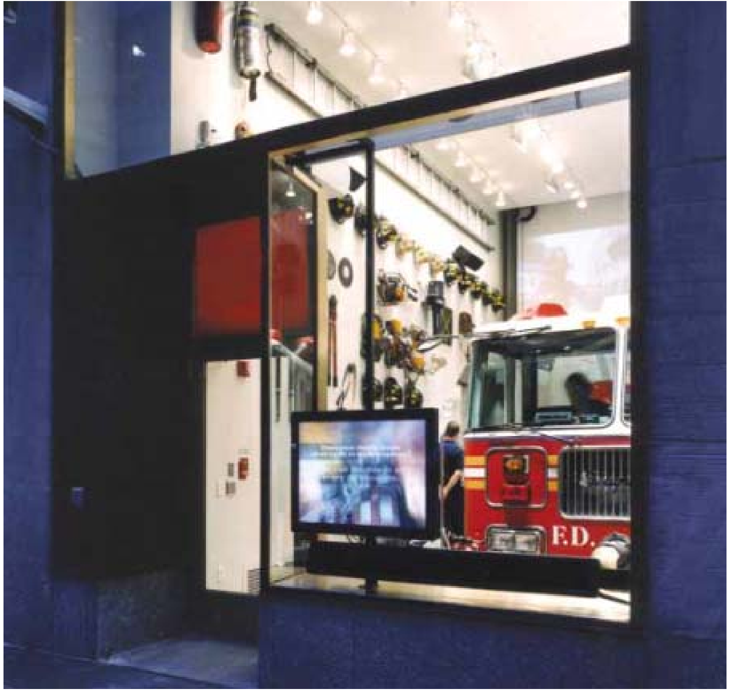
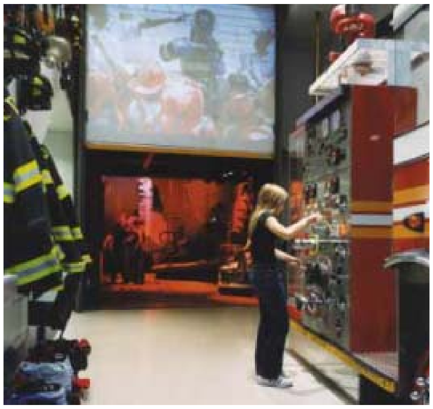
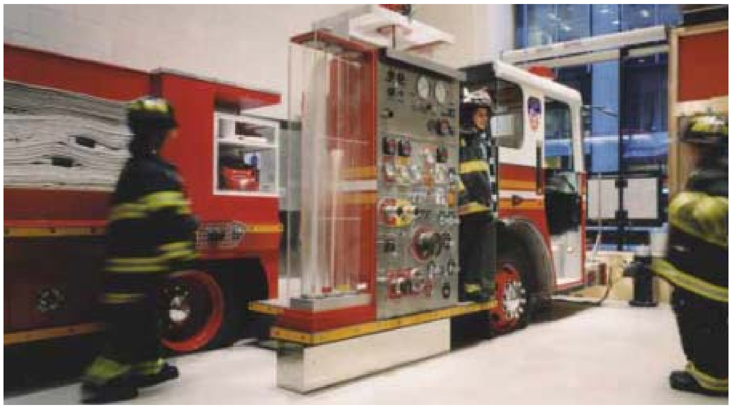
CEILINGS

AN EDUCATIONAL MISSION IS EXPRESSED WITH STYLISH FINESSE

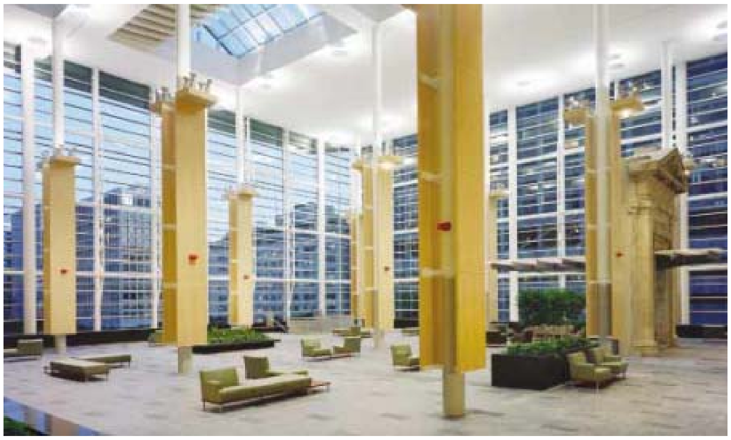
A campaign to increase fire-safety awareness led to the conversion of a New York City coffee shop into a dynamic fire-safety educational facility. The space, intended for local and traveling visitors, needed to accommodate individuals and groups, provide support areas, room for future teaching technologies, and a gift shop from which important revenue for this nonprofit organization could be generated. The project relies heavily on multimedia—both a fire-truck cab and a video called *The Power of Fire* mark its storefront. Inside, an interactive theater environment creates a visceral learning experience about the lives of firefighters and the devastating effects of fire. Since its opening, more than 250,000 people have visited the facility. Though not originally planned in the design, one wall of the building, now covered with the badges of firefighters who perished on 9/11, has become an impromptu memorial.







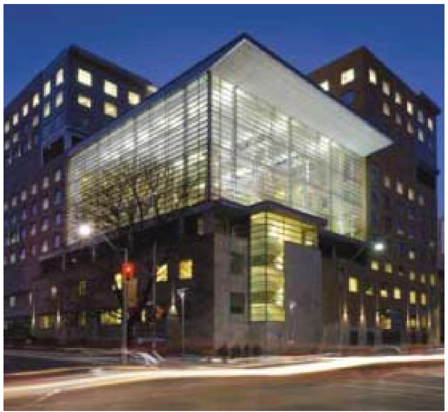
Project: *FDNY Fire Zone, New York City*
Architect: *BKSK Architects*
Client: *FDNY Fire Safety Education Fund*
Key Players: *Mediaworks (mixed media and narrative); S. DiGiacomo and Son (general contractor); Lilker Associates (engineering); Weidlinger Associates (engineering)*

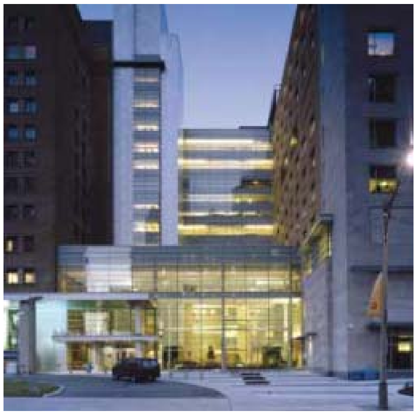


FRESH DESIGN ENHANCES THE QUALITY OF CARE AND COMFORT

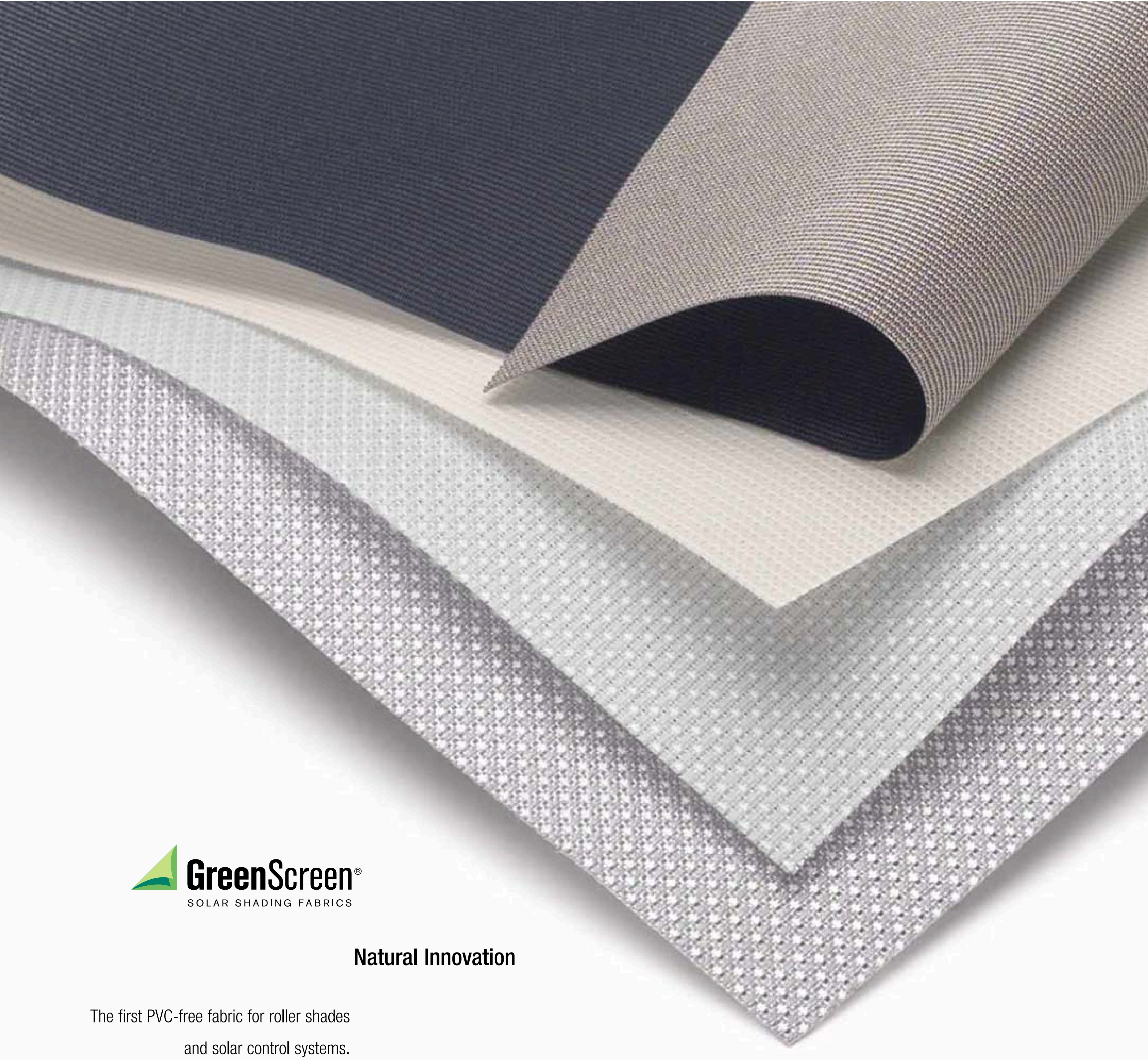
The Toronto Hospital, a thriving urban health-care center, wanted to expand its facility to meet its programmatic needs. In a new building centered on a four-story, atriumlike patient court, the hospital was able to replace its imaging and surgical units while integrating the latest protocol and technology. The added space has enabled critical bed care and annual patient admission to increase significantly, and surgical and imaging capacities have also expanded. Most significantly, patients, their families, and staff enjoy relaxing and gathering in the court. The new structure fits nicely into the existing complex—its limestone base is sympathetic to the materials used in the surrounding buildings. Its assertive, contemporary look reflects a signature design and conveys a new institutional identity.

Project: *University Health Network/The Toronto Hospital New Clinical Services Building, Toronto, Canada*
Architect: *Hellmuth, Obata + Kassabaum*
Client: *University Health Network*
Key Players: *EllisDon (general contractor); Rice Brydon Limited Design (interiors); H.H. Angus & Associates (mechanical/electrical); Quinn Dressel Associates (structural); Ferris + Quinn Associates (landscape)*





PHOTOGRAPHY: © MICHAEL MORAN PHOTOGRAPHY (TOP THREE); DAVID WHITTAKER (BOTTOM THREE)



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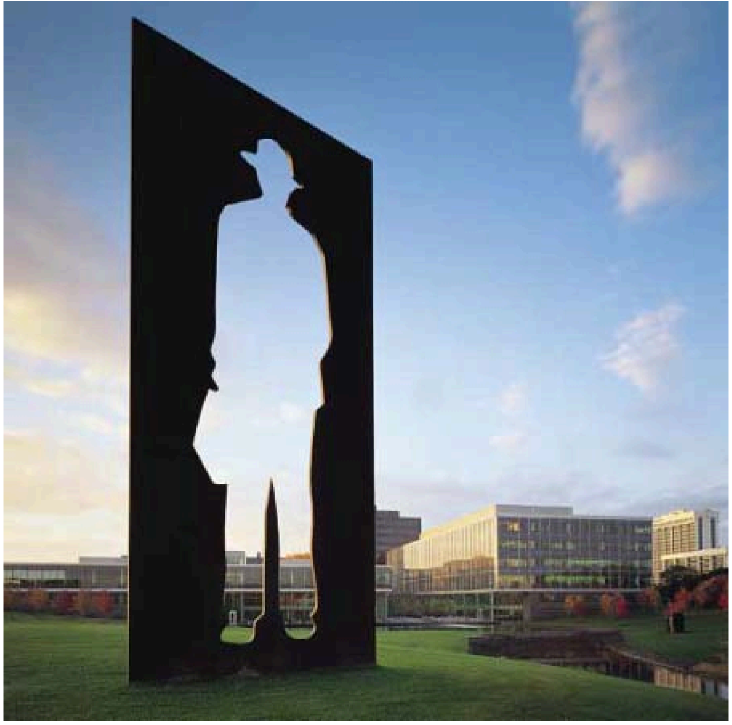
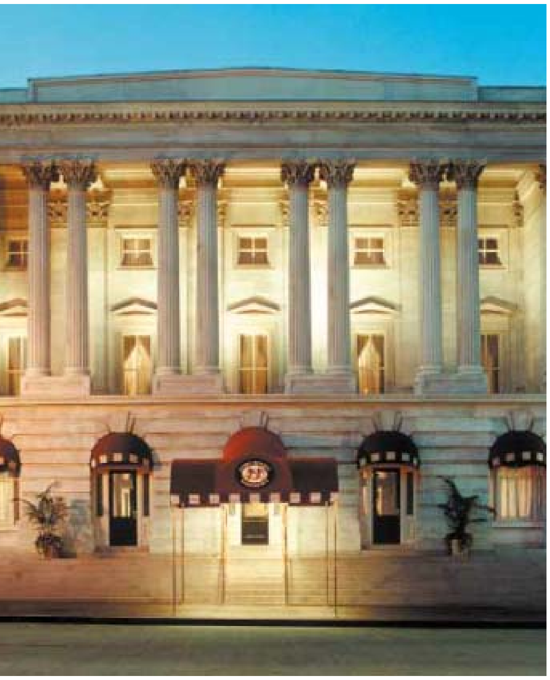
FINALIST

A CORPORATE COMMUNITY IS STRENGTHENED BY GOOD DESIGN

The project team for this corporate headquarters signed a statement at the beginning of the undertaking saying: “We are committed as a collaborative team to create a work environment that promotes innovation, productivity, and a sense of pride in the company.” Their project does just that. The design is based on interaction among employees. The Champions Center, the new employee services building, centralizes amenities and serves as a “town center,” while a new office building to the west of it creates an unbroken circulation route through the entire corporate campus. The steel-and-glass facades of the new buildings give the headquarters a unified appearance. An elegantly designed atrium, connecting the cafeteria, amenities, and conference center, houses a glass sculpture designed by James Carpenter, frames a 1987 Borofsky sculpture, and opens onto a pond and landscape beyond. Amazingly, the project was completed ahead of schedule and under budget. Its true success is reflected in the positive feedback it is receiving from its employees.



Project: *General Mills, World Headquarters, Golden Valley, Minn.*
Architect: *Hammel, Green and Abrahamson*
Client: *General Mills*
Key Players: *McGough Construction (general contractor); Oslund & Associates (landscape)*



AN ELEGANT ADAPTATION AND UNIQUE COLLABORATION

This project is the result of a unique partnership between the federal government, which sought to restore the Old General Post Office, a national landmark that had fallen into disrepair, and a private developer, who wanted to turn the building, also known as the Tariff Building, into a profitable commercial venture. With guidance from both parties, a design team was able to preserve the structure, reusing it as a 172-room hotel. The main post office area was converted into the lobby, the mail-sorting pavilion became a restaurant, and guest rooms were adapted to preserve the building’s historical integrity. Both clients were able to adapt this architectural treasure in a way that allowed for continued community use of the building. This public/private partnership represents a positive investment in a historic Washington, D.C., neighborhood.

Project: *Hotel Monaco (Tariff Building), Washington, D.C. [RECORD, June 2003, page 220]*
Architect: *Michael Stanton Architecture; Oehrlein & Associates Architecture (associate architect)*
Client: *Kimpton Hotel & Restaurant Group; General Services Administration-Portfolio Management*
Key Players: *Cheryl Rowley Interior Design (interiors); Thornton Tomasetti Cutts, formerly James Madison Cutts Consulting Structural Engineers (structural); WEDGCO Engineering (m/e/p); JA Jones/Tompkins Builders, now a subsidiary of Turner (general contractor)*

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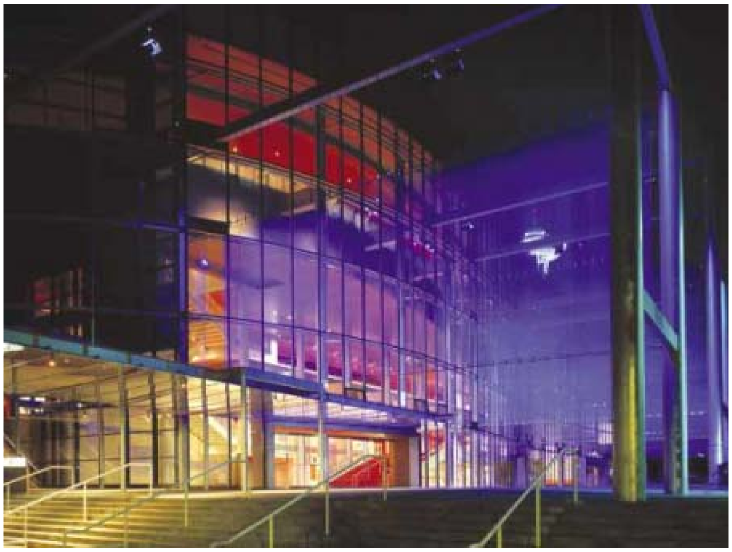
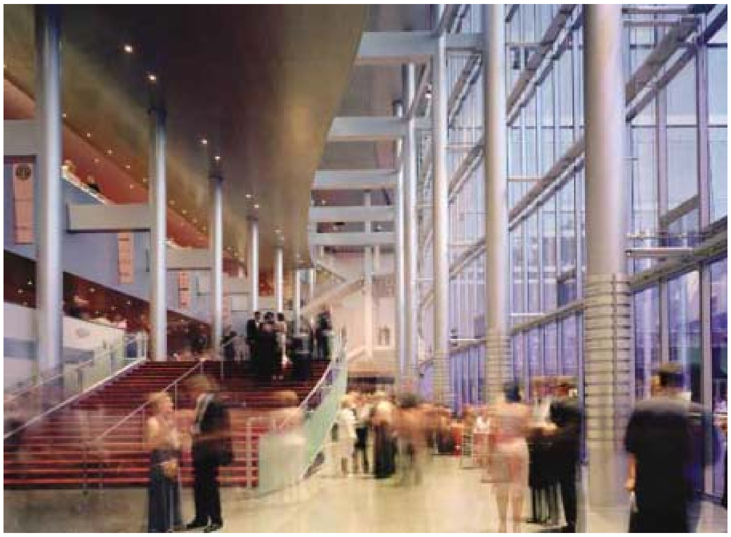
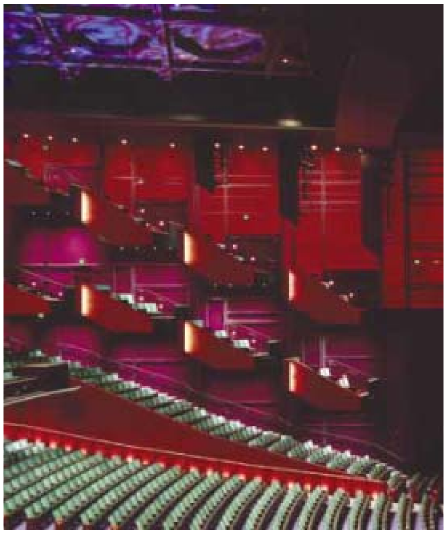
WINDOW COVERINGS

COLOR AND LIGHT BRIGHTEN THIS NEW CULTURAL DESTINATION

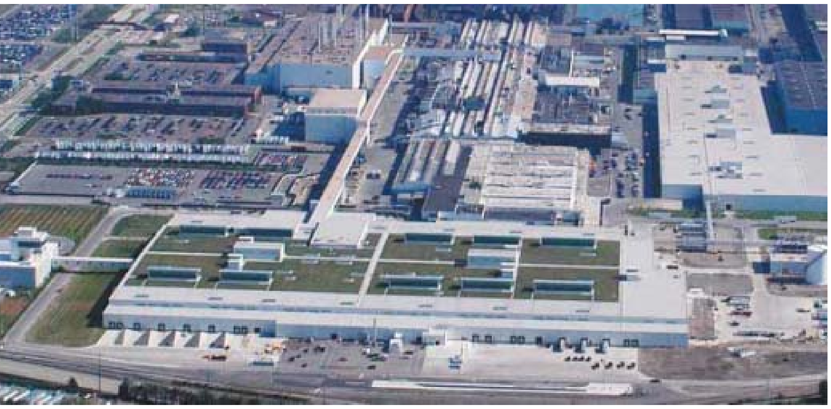
The city center campus in Seattle has increasingly become the heart of cultural activity in the region, but the ballet and opera house, built in 1927 and renovated in 1962, lay dormant in this lively area. The city partnered with the ballet and opera companies to create a truly modern performance hall that attracts new visitors and enhances the cultural vision and streetscape of the city. The design team successfully met the challenge of working with multiple clients and providing acoustical integrity, despite a short construction period, renovation challenges, and budgetary contraints. The new space brings the arts to the general public through mesh scrims that reflect the building's vibrancy on the street. The ballet and opera hall has been able to attract world-class talent since its opening, a testament to its success.







Project: *Marion Oliver McCaw Hall, Seattle, Wash. [RECORD, November 2003, page 230]*
Architect: *LMN Architects; Streeter & Associates (associate architect)*
Client: *The Seattle Center*
Key Players: *Skanska, formerly Baugh Construction (construction/general contractor); Sussman/Prejza (interiors); Magnusson Klemencic Associates (structural); CDi Engineers (mechanical); Gustafson Guthrie Nichol (landscape)*



SUSTAINABILITY PROMOTES AN AMERICAN TRADITION

Ford Motor Company needed to build a facility that would reestablish its dominance in its most profitable product line, update its manufacturing process, and position the company for future success. This facility not only reinforces the firm's image, but revitalizes the 600-acre manufacturing site on which it is built. In designing a facility that is environmentally sustainable, Ford created a 21st-century model of manufacturing on an industrial brownfield. A 10-acre "living roof" above the new truck plant will decrease the building's energy cost by 7 percent and improve air quality by 40 percent. A new visitor center allows the community to witness the positive interface between industry and environment that has been achieved.

Project: *Ford Rouge Center, Dearborn, Mich.*
Architect: *William McDonough + Partners (concept design architect and master planner); ARCADIS (architect, Dearborn Truck Plant)*
Client: *Ford Motor Company and Ford Motor Land Development*
Key Players: *Walbridge Aldinger (general contractor); ARCADIS (engineering); HarleyEllis (landscape)*

PHOTOGRAPHY: © FRED HOUSEL (TOP THREE); FORD PHOTOGRAPHIC (BOTTOM LEFT TWO); FORD MOTOR COMPANY/JUSTIN MACONOCHIE (BOTTOM RIGHT)

"Will
Architecture
Remain
Important?"

It's a heady time to be an architect. Buildings have never been more prominent in the headlines or in the mind of the public. Projects like the Freedom Tower or Terminal 2A in Paris appear regularly in the mainstream press. But as architecture reestablishes its place in the public eye, the challenges facing architects themselves remain firmly in place.

Every architect knows well the side of our industry the public rarely sees: contentious relationships between architects and contractors, missed budgets and schedules, the wasteful nature of construction itself. Each of these problems is a failure of communication: the inability to describe, transmit, and properly integrate ideas. The myriad decisions that yield a building today are supported by the tools of yesterday, tools ill suited to the complexity of the problem.

Using technology to integrate the building process through communication of ideas will solve many of these challenges. Today's technology offers opportunities to create, manage, and share high-quality design information. The ways that buildings are conceived, evaluated, fabricated, and constructed will change, and technology is already the catalyst.

At this year's Venice Biennale, the U.S. Pavilion exhibition, entitled *Transcending Type*, demonstrates how powerful architectural ideas can transform even the most common building types. Innovative design aimed at solving prosaic problems proves that architects can bring real value to the challenges of building today. Dramatic process changes made possible through technology are critical to bringing these visions to reality—and keeping architecture and architects truly important.

Phillip G. Bernstein, FAIA
Vice President
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Autodesk is proud to sponsor *Transcending Type* at the 2004 Venice Architecture Biennale.

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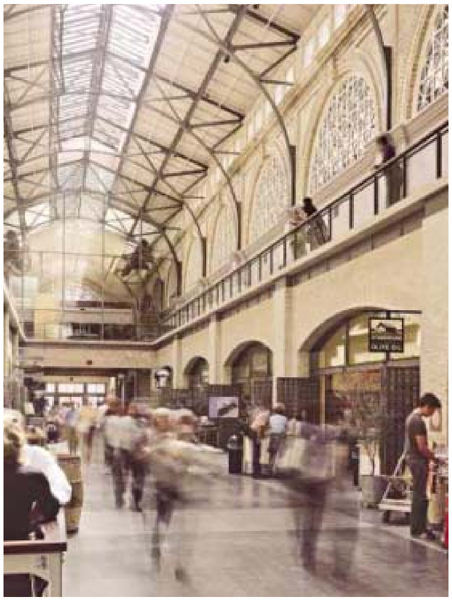
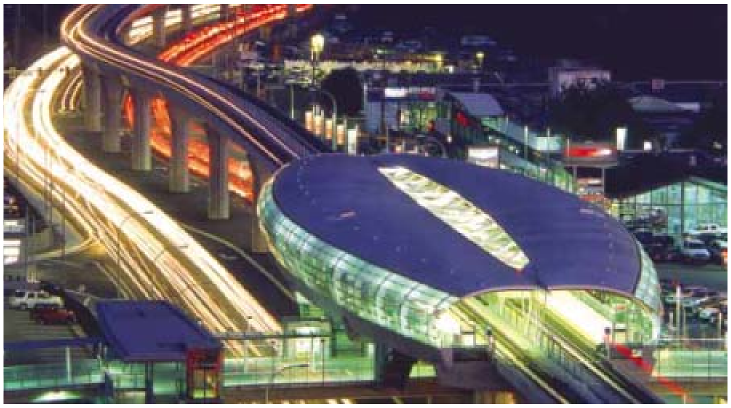
FINALIST

COMMERCIAL SUCCESS FUSES WITH OLD WORLD CHARM

How do you reinvent a landmark building? With the destruction of the freeway that separated the San Francisco Ferry Building from the the city, the client saw an opportunity to restore the building as a transportation, retail, and office center, attracting the community to the waterfront. The design meticulously restored the building's original architectural elements, while incorporating new uses. The restoration of a 600-foot-long passenger concourse or nave exists as the core of the project. Office space that had been added in the 1950s was removed and large openings were cut into the second floor, bringing light and vibrancy to the ground level. The client and design team turned to 19th-century European arcades and department stores as models, bringing local artisans and restaurants to the marketplace. Both a 100 percent lease-rate and a 12.5 percent increase in ferry use per year indicate success.



Project: *San Francisco Ferry Building, San Francisco [RECORD, November 2004, page 164]*
Architect: *SMWM; Badauf Catton Von Eckartsberg (retail architect); Page & Turnbull (preservation architect)*
Client: *Port of San Francisco; Wilson Meany Sullivan; Equity Office Properties*
Key Players: *Plant Company Construction (construction); Rutherford & Chekene and Structural Design Engineers (structural); Anderson, Rowe & Buckley (mechanical)*



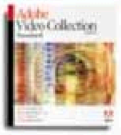
STIMULATING FORMS CONVEY THE INNOVATION BEHIND THIS DESIGN

With the dual goals of encouraging public transportation and creating a dynamic transit hub for future expansion initiatives, the design team developed a sleek platform and elevated station, accessed by a pedestrian bridge. Shaped like a swell that tapers at each end, the form of the station reflects the movement of the skytrain. Composite wood-and-steel ribbing brings warmth to the structure, and the use of glass and an open-plan design provide transparency and security. Large overhangs protect riders from rain and wind, and bicycle storage and easy access to connecting bus service offer conveniences for commuters. The project is visually stunning on both the interior and exterior, and it has become a model of achievement for future stations along the expanded rail line.

Project: *Brentwood Skytrain Station, Burnaby, Canada [RECORD, January 2003, page 104]*
Architect: *Busby + Associates Architects*
Client: *Rapid Transit Project 2000*
Key Players: *Dominion Construction (construction); Fast & Epp Partners (structural); Klohn Crippen (mechanical); Durante Kreuk (landscape); AGRA Simons (electrical)*

PHOTOGRAPHY: © RICHARD BARNES (TOP FAR RIGHT AND FAR LEFT); NIC LEHOUX (TOP CENTER AND BOTTOM THREE)

Finally, a solution that can keep up with your imagination.



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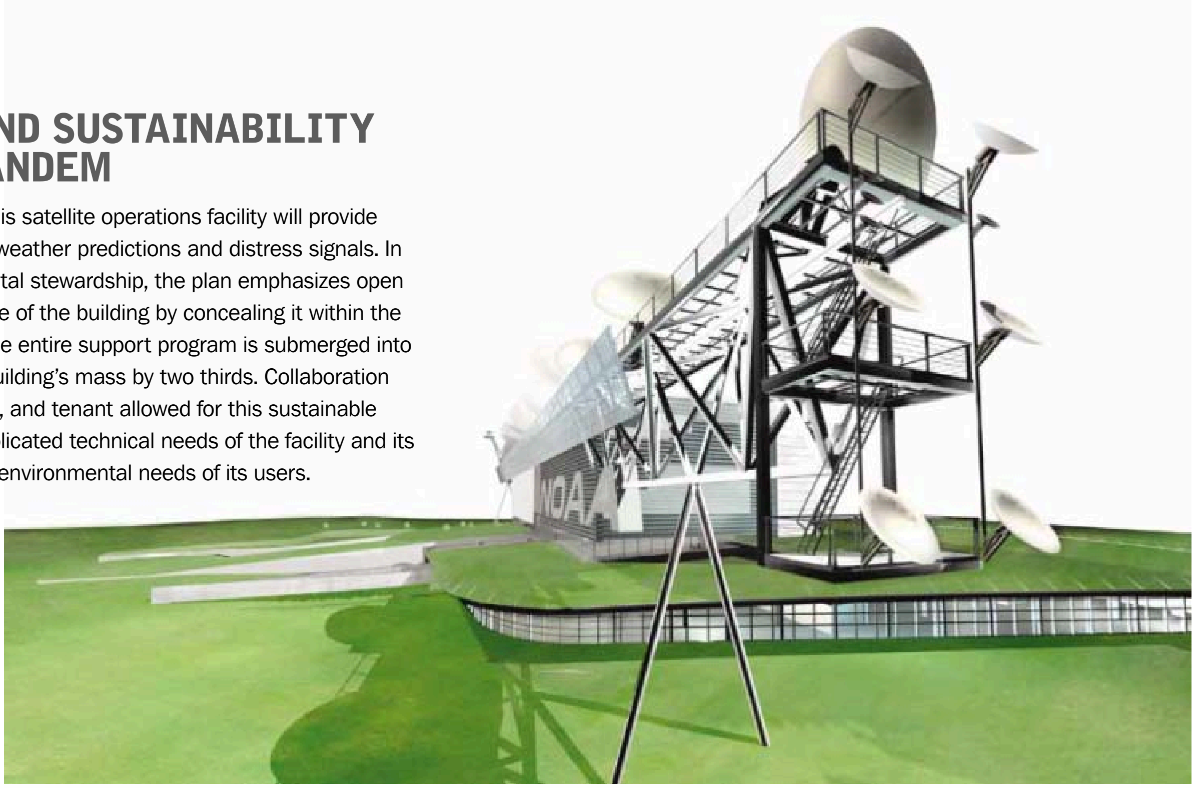
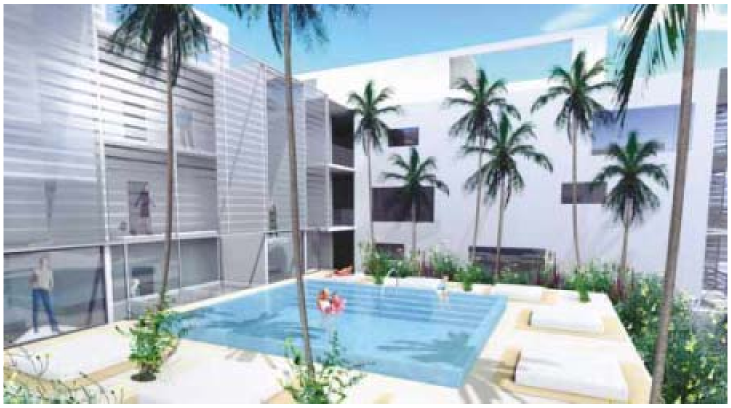
TECHNOLOGY AND SUSTAINABILITY WORKING IN TANDEM

Scheduled to open in 2005, this satellite operations facility will provide global environmental data for weather predictions and distress signals. In light of the clients' environmental stewardship, the plan emphasizes open space, minimizing the presence of the building by concealing it within the natural contours of the site. The entire support program is submerged into the landscape, reducing the building's mass by two thirds. Collaboration among the design team, client, and tenant allowed for this sustainable project to both meet the complicated technical needs of the facility and its antennas, and respond to the environmental needs of its users.



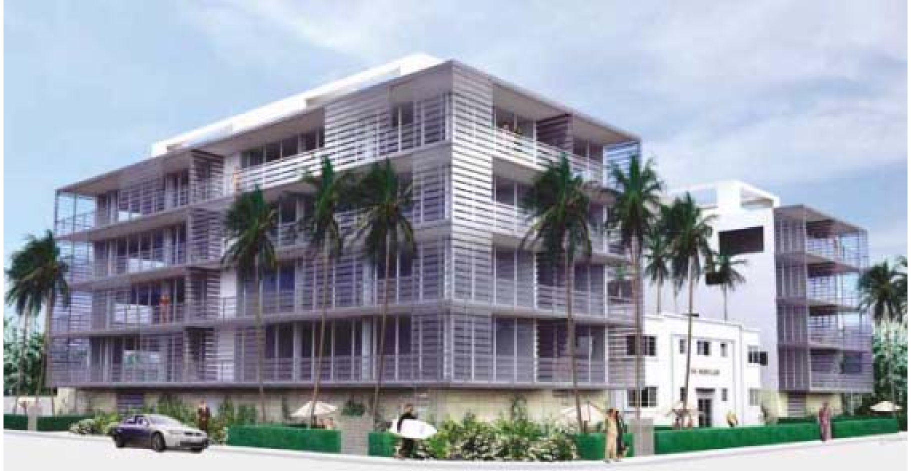
Project: *Satellite Operations Facility & Administrative Offices, Suitland, Md.*
Architect: *Morphosis/Einhorn Yaffee Prescott*
Client: *General Services Administration*
Key Players: *3DI (construction); Cagley & Associates (structural); EDAW (landscape); P.J. Dick (general contractor)*



A HISTORIC STRUCTURE ANCHORS A MODERN COMPLEX

The architect faced the challenge of designing a residential complex on two vacant lots straddling a two-story prewar apartment building. A scheme that fuses the architectural language of the existing structure with four new ones was proposed. The existing building serves as a threshold, allowing for a subtle shift from historic to modern throughout the entry sequence. The new structures wrap around the historic one, forming an open, central courtyard. On top of the existing building, a garden with an edgeless pool will become the public heart of the complex. The design simultaneously meets the objective of maximizing sellable area within municipal zoning constraints while furthering innovative design as an asset to the community.

Project: *Montclair Lofts, Miami Beach, Fla.*
Architect: *Oppenheim Architecture + Design*
Client: *Covin Development*
Key Players: *Vidal + Associates (engineers); De Los Reyes Engineers (engineers); Rosenberg Gardner Design (landscape); Max South Construction (general contractor)*



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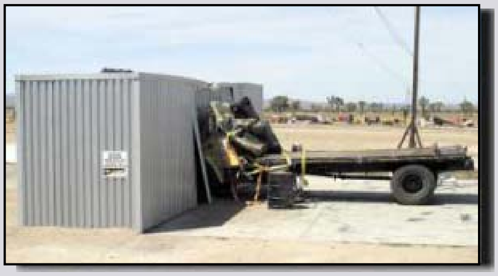

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2004 JURY

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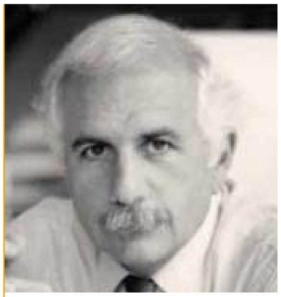
Moshe Safdie, FAIA, Jury Chair



Moshe Safdie established his practice in 1964, following an apprenticeship with Louis Kahn. His first project was Habitat '67, the pioneering cellular housing complex. In 1978, after teaching at Yale, McGill, and Ben Gurion universities, Safdie became director of the Urban Design Program and the Ian Woodner Professor of Architecture and Urban Design at the Harvard Graduate School of Design. He recently completed the Vancouver Public Library in Canada and the Skirball Cultural Center in Los Angeles. He is currently working on two airports: the Lester B. Pearson International Airport in Toronto and the Ben Gurion International Airport in Tel Aviv. He has been honored with the Gold Medal of the Royal Architectural Institute of Canada.

> "WHEN CLIENTS AND ARCHITECTS COLLABORATE CREATIVELY WITH MUTUAL RESPECT, GREAT THINGS CAN HAPPEN."

Betsy Z. Cohen

Betsy Cohen founded Jefferson Bank in 1974 and served as its chairman and C.E.O. for 25 years. Cohen sold the company, and in 2000 she founded the Bancorp Bank, a virtual bank serving small- to midsize businesses in the Philadelphia-Wilmington area. She is the chairperson and C.E.O. of RAIT, a real estate investment trust that provides specialty financing to owners of commercial real estate. She sits on the boards of Aetna U.S. Healthcare, Corporate Office Properties Trust, Maine Merchant Bank, the Philadelphia Museum of Art, and Bryn Mawr College—her alma mater.

> "THE BW/AR AWARDS ALLOWS US TO SEE ARCHITECTURAL DESIGN AS THE PROTAGONIST OF EXCELLENT BUSINESS PRACTICE AND ENHANCED FUNCTIONALITY."

Rand Elliot, FAIA

As principal, lead designer, and founder of Elliott + Associates, Rand Elliott oversees every aspect of the firm's design process. He believes that each project directly reflects the client's personality or business goals. He is known for designing projects that not only "fit" their respective sites but seem literally to "grow" from them. Since its inception in 1976, Elliott + Associates Architects has received 158 international, national, regional, and local awards, including two Business Week/Architectural Record Awards. The firm is the only architectural firm in the state of Oklahoma to win a national AIA Honor Award, and in 1988, the Central Oklahoma Chapter of the AIA honored the practice as Firm of the Year. Elliott received his B.Arch. from Oklahoma State University.

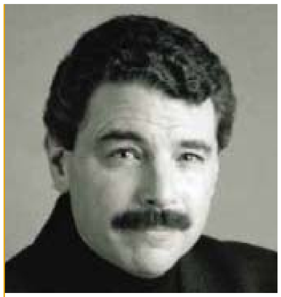
> "TOGETHER, ARCHITECTURE AND BUSINESS ILLUSTRATE THE POWER OF VISION AND PURPOSE."

Douglas Gardner

Douglas Gardner is a consultant specializing in land use, planning, and project management. Formerly, he was president of the Urban Development Group with Catellus Development, where he was responsible for major mixed-use projects, including Mission Bay in San Francisco. Prior to that, he was an associate partner with the architectural firm of I.M. Pei & Partners, and he is a graduate of Yale University and the Yale School of Architecture. Gardner serves on the advisory boards of the Trust for Public Land and the Audubon Society, and he is a past president of the Los Angeles Conservancy.

> "THE QUALITY AND QUANTITY OF SUBMISSIONS BY GOVERNMENT AND NOT-FOR-PROFIT CLIENTS IS IMPRESSIVE."

Lee Green



In his 24-year career with IBM, Lee Green has held numerous design and management positions. Recently, he played a pivotal role in branding and design initiatives, including the launch of IBM's e-business identity program, the new technology branding program, and the redesign of IBM's desktop, mobile, and server products. He is also responsible for IBM's worldwide product industrial design, identity programs, graphics, packaging, and Internet design. Green has an undergraduate degree in design from Temple University and an M.A. in design from Rochester Institute of Technology (RIT). He has taught and lectured on design at Stanford University, Harvard, MIT, and RIT. He currently serves on the board of directors and as advisory board president for the Design Management Institute; he is also a member of the advisory board of RIT.

> "THE GREAT THING ABOUT THE AWARDS PROGRAM IS THAT IT FOCUSES ON EXCELLENCE FROM THE PERSPECTIVE OF THE USER, OR OCCUPANT. "

PHOTOGRAPHY (LEFT TO RIGHT): © MICHAEL RONNEN SAFDIE; MIMI JANOSY; MICHAEL IVES; STANDARD; SALLY ANDERSON BRUCE

Paul Herzan

Paul Herzan serves as president of the board of trustees for the Smithsonian Institution's Cooper-Hewitt, National Design Museum, the only museum in the United States devoted exclusively to historic and contemporary design. At the museum, Herzan chairs the executive committee and sits on all other committees. He is also a director of the Lily Auchincloss Foundation and a trustee of the New York Landmarks Conservancy. Currently, he is consulting on an incubation project to redesign the New York City taxicab in conjunction with the 2007 centennial of its founding.

"I AM HONORED TO BE INVOLVED IN AN AWARDS PROGRAM THAT RECOGNIZES INNOVATIVE DESIGN IN A BUSINESS CONTEXT."

Frances P. Huppert, FAIA

As senior vice president of design and construction for the Empire State Development Corporation (ESDC), Frances Huppert supervises all aspects of project development, from planning and urban design to programming and construction. Under her tutelage, innovative technologies, sustainable design, cost efficiency, and client and architect partnering have become priorities in ESDC's projects. Huppert is a recipient of the 1997 AIA Public Architects Award. She is the current chair of the 2004 AIA New York Chapter Fellows Committee.

"IT IS GRATIFYING TO SEE THE MERGING OF HIGH-QUALITY DESIGN WITH PUBLIC PURPOSE."

Marianne McKenna

A founding partner of Kuwabara Payne McKenna Blumberg Architects (KPMB) in Toronto, Marianne McKenna has provided leadership for many of the firm's award-winning projects. With a focus on civic architecture and the development of public spaces, KPMB's designs make strong contributions to the identity and vitality of their urban context. McKenna's completed projects include the Ettore Mazzoleni Concert Hall at the Royal Conservatory of Music in Toronto and the Jackson-Triggs Niagara Estate Winery in Niagara-on-the-Lake. She has taught at McGill University in Montreal and the School of Architecture at the University of Toronto. She has been a lecturer and guest critic at universities including Yale, Waterloo, Carleton, and McGill.

"THIS AWARD DEMONSTRATES THE SYNERGY OF GREAT DESIGN AND BUSINESS PRACTICE."

Paula S. Wallace

Paula Wallace is president and cofounder of Savannah College of Art and Design, the largest art and design college in the U.S. She not only develops the curriculum but serves as curator, art collector, philanthropist, designer, and author. Her leadership at the college has produced a unique environment. Wallace created such successful events as the Sidewalk Arts Festival and the Savannah Film Festival. She was named the 2004 Ernst & Young Entrepreneur of the Year for the Southeast region, and she serves on the advisory board of the National Museum of Women in the Arts, Washington, D.C.

"THE ARCHITECT'S ROLE IS TO FULFILL CONVENTIONAL FUNCTIONS WITH CHOICES OF ENGAGEMENT OR TRANQUILITY."

Allison G. Williams, FAIA

A principal at Ai, a 115-person architecture and interiors firm, Allison Williams's recent projects include the Richmond Civic Center Master Plan, in California, and the African American Cultural Center of Pittsburgh. Prior to Ai, Williams was an associate partner with Skidmore, Owings & Merrill in San Francisco. She serves on the University of California, Berkeley Capital Planning Design Review Committee, the board of directors for the Museum of the African Diaspora and the Exploratorium, both in San Francisco, and she is on the *Harvard Design Magazine* advisory board. She earned a B.A. in art and an M.Arch. from the University of California, Berkeley. She was a Loeb Fellow at the Harvard Graduate School of Design.

"MANY OF THE PROJECTS COORDINATED PUBLIC AND PRIVATE FUNDING AND SOCIALLY AND CULTURALLY MOTIVATED INTERESTS."

PHOTOGRAPHY (LEFT TO RIGHT): COURTESY PAUL HERZAN; FRANCES P. HUPPERT; © MICHAEL RAFELSON;
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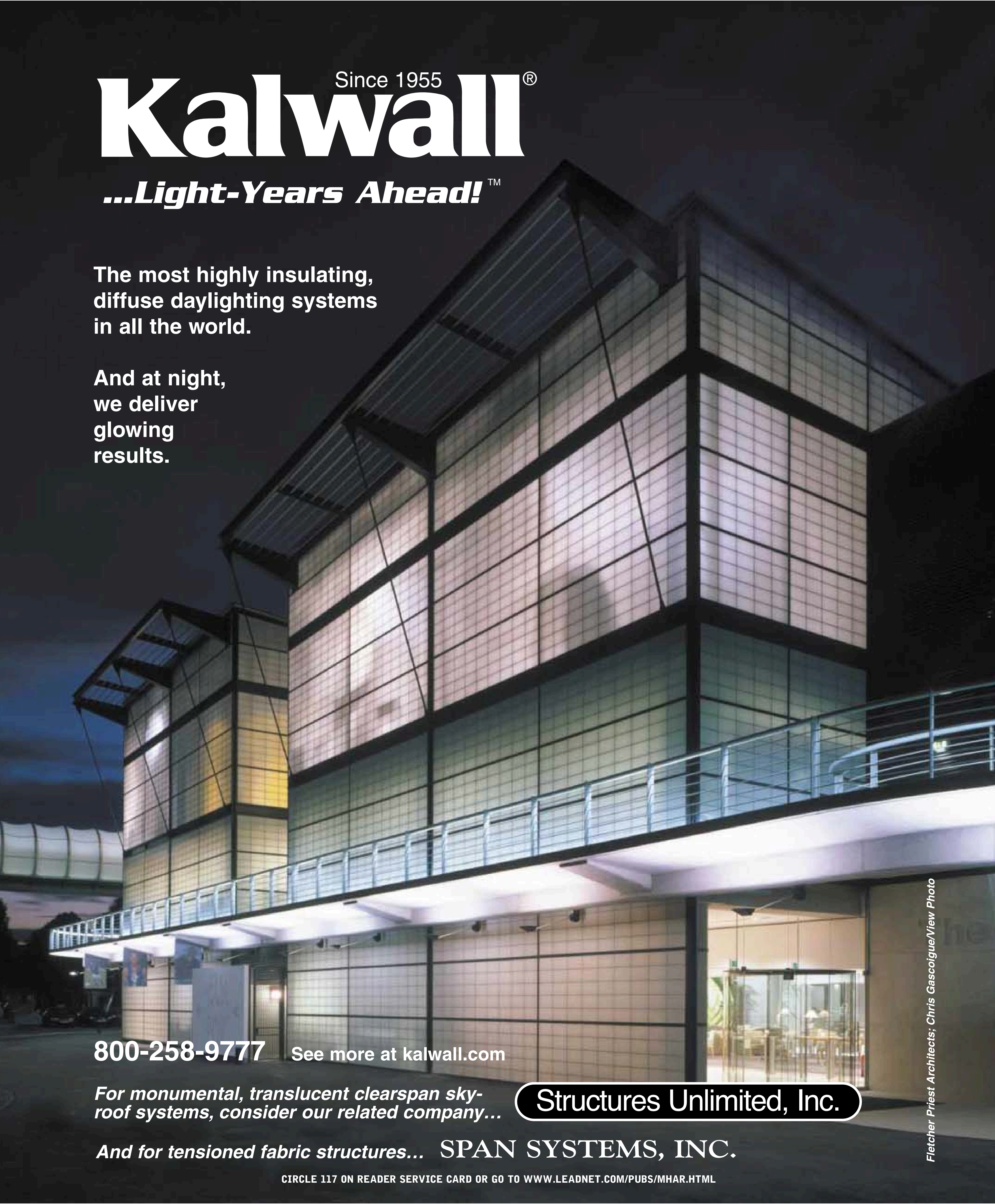

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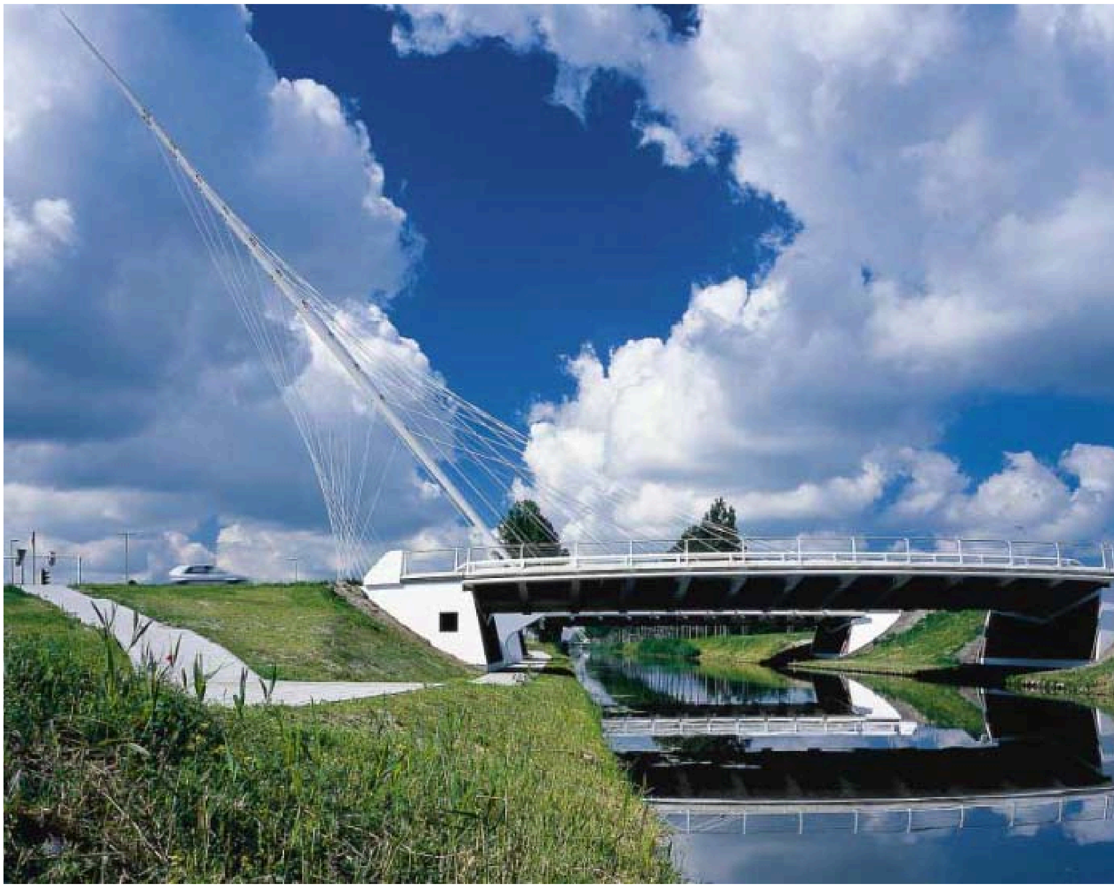
Santiago Calatrava's Lyrical Crossings

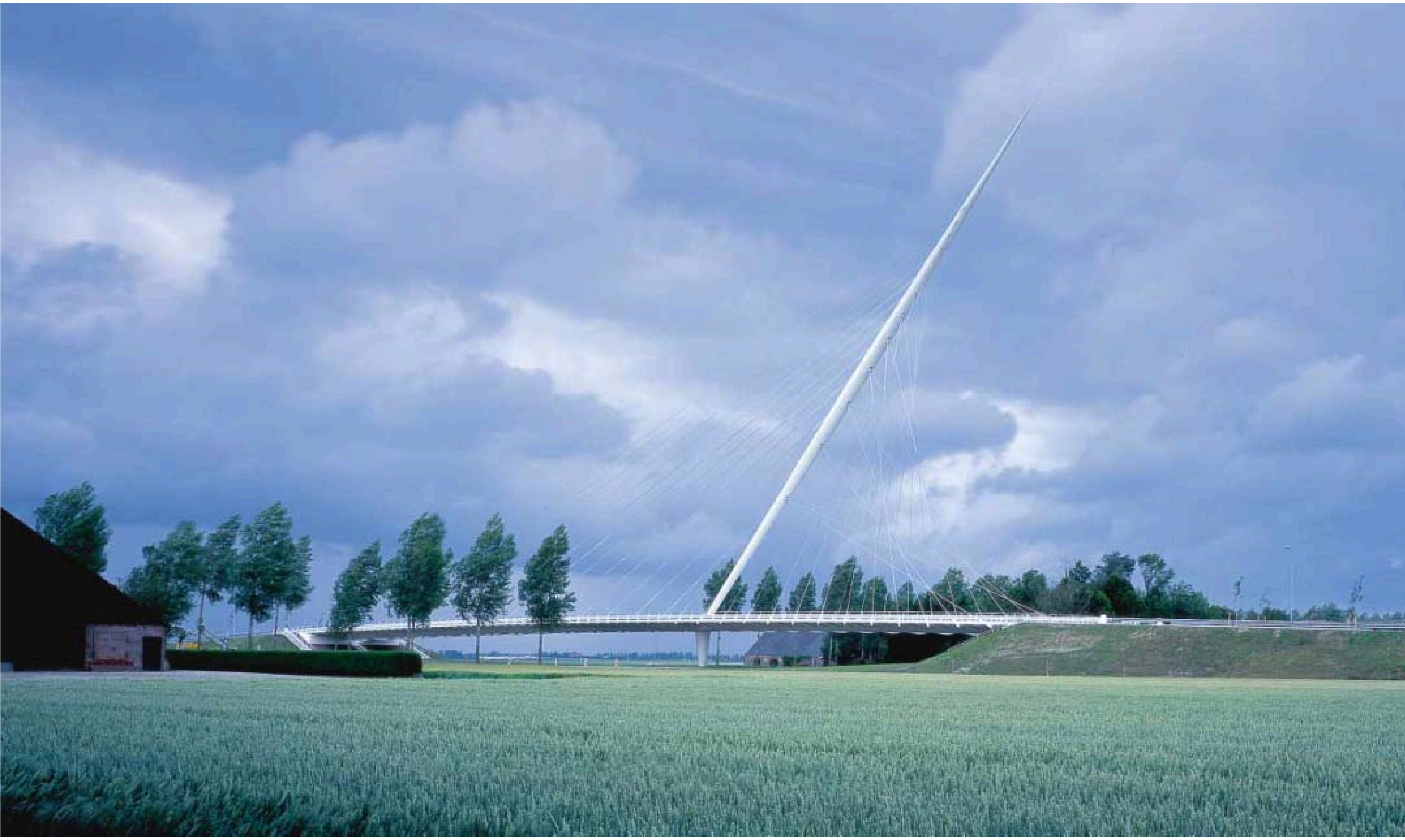
Photography by Alan Karchmer

In the Cittern Bridge (opposite), intersecting spans are suspended from one mast. The Lute's single mast (below) supports a pair of curving spans that form a rotary.

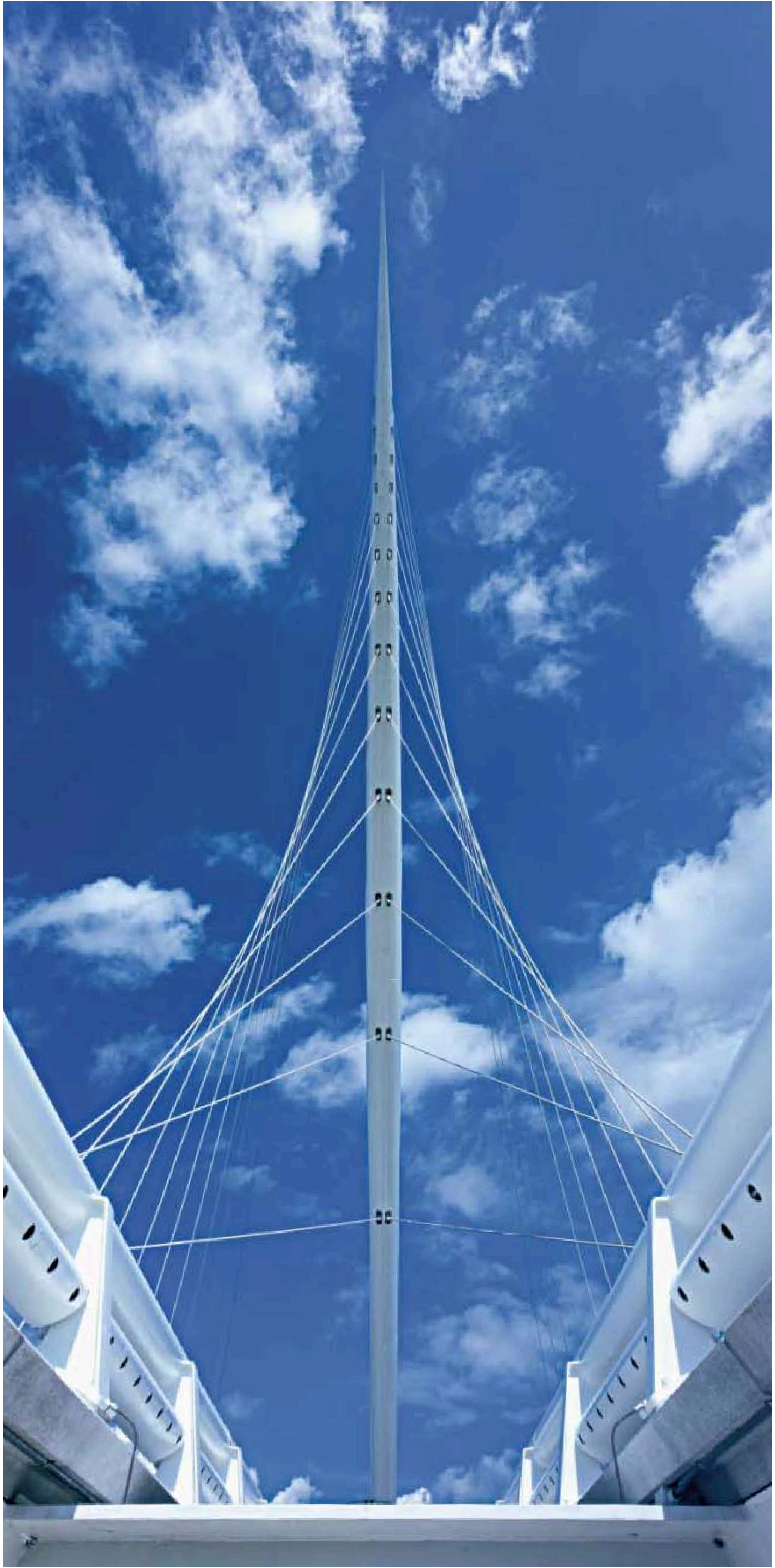


In the quintessential Dutch landscape of the Haarlemmermeer district, southwest of Amsterdam, Santiago Calatrava has designed three bridges over the Hoofdvaart Canal. Named for musical instruments—the Harp, Cittern, and Lute—each is a deftly sketched variation on a structural theme. In the changing environment of this rapidly developing area, the bridges will soon become urban landmarks. These photographs allow us to see them in the beauty of their pastoral agricultural setting.

The bridges rise out of the flat landscape, The soft light and powerful sky of an approaching storm reveal the delicate equilibrium of the Harp Bridge (opposite, viewed from the north, and below, from the south). The mast is poised in space, suggesting that it is held in suspension by the span.



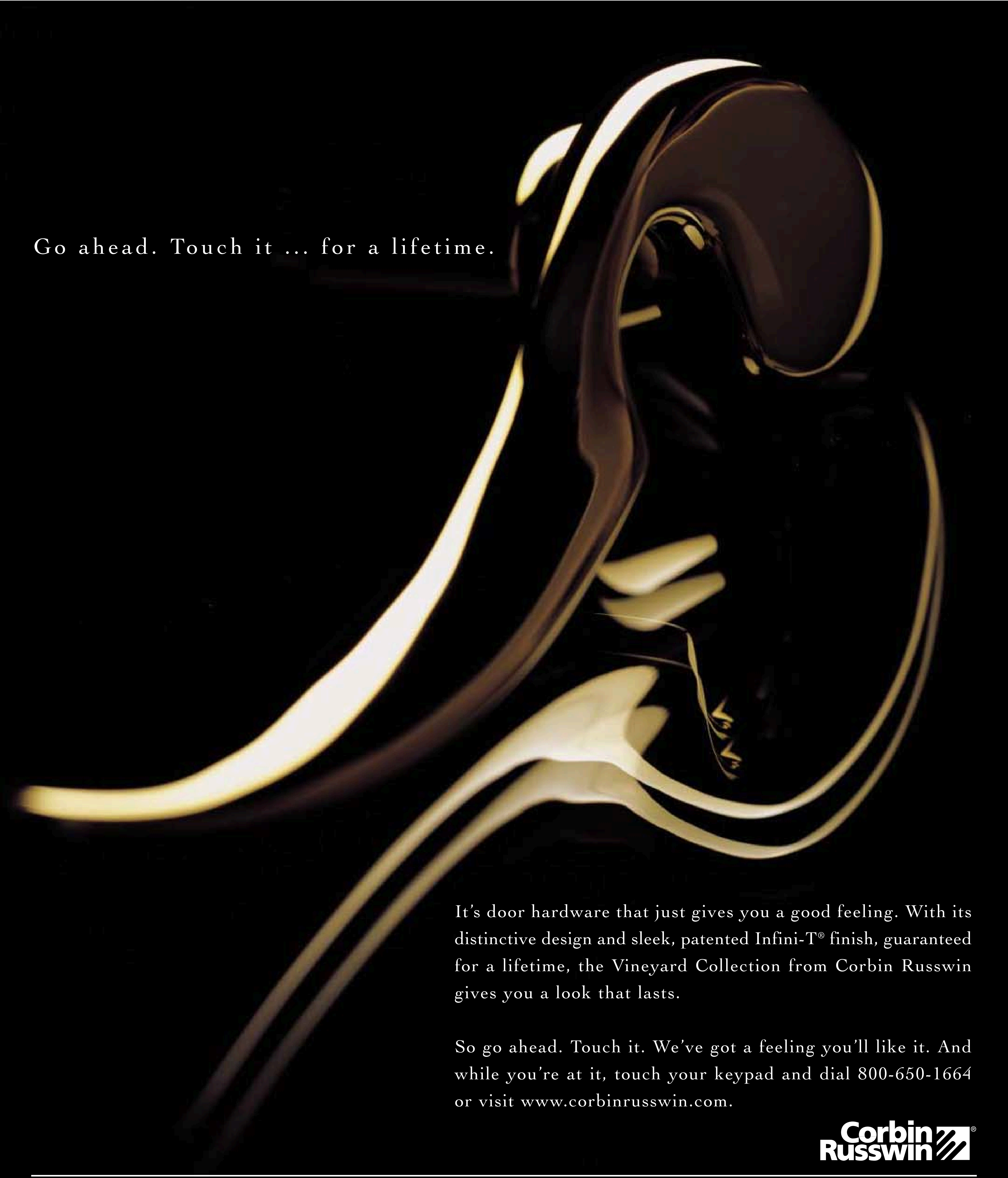
dramatically piercing the Dutch sky.



The Harp Bridge's mast soars over parallel roadways.

The three sister bridges (below, from left to right), the Harp, Cittern, and Lute, are harbingers of change to come to this fast-evolving corner of Holland.

Cables and masts draw bold geometric forms in the air.



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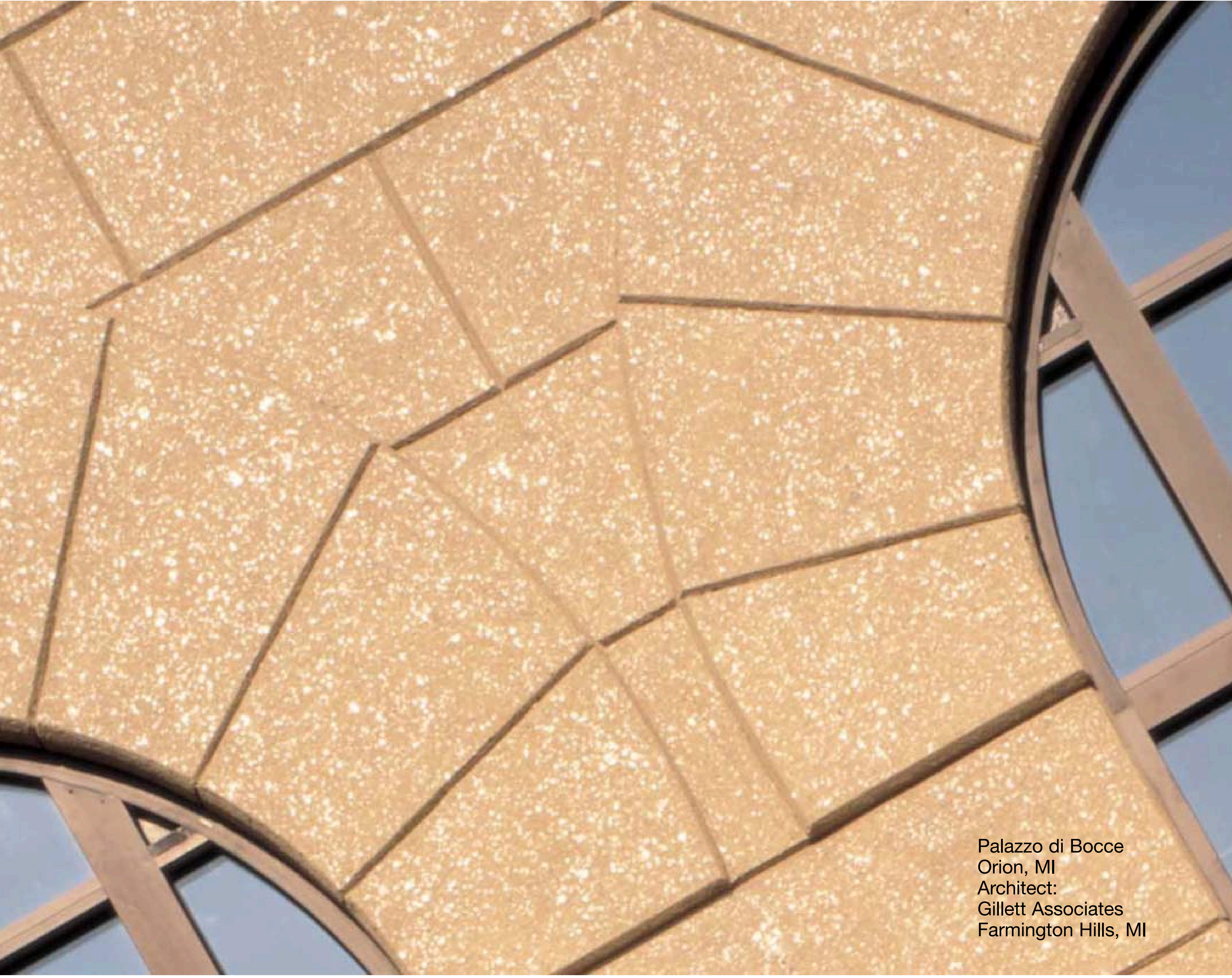

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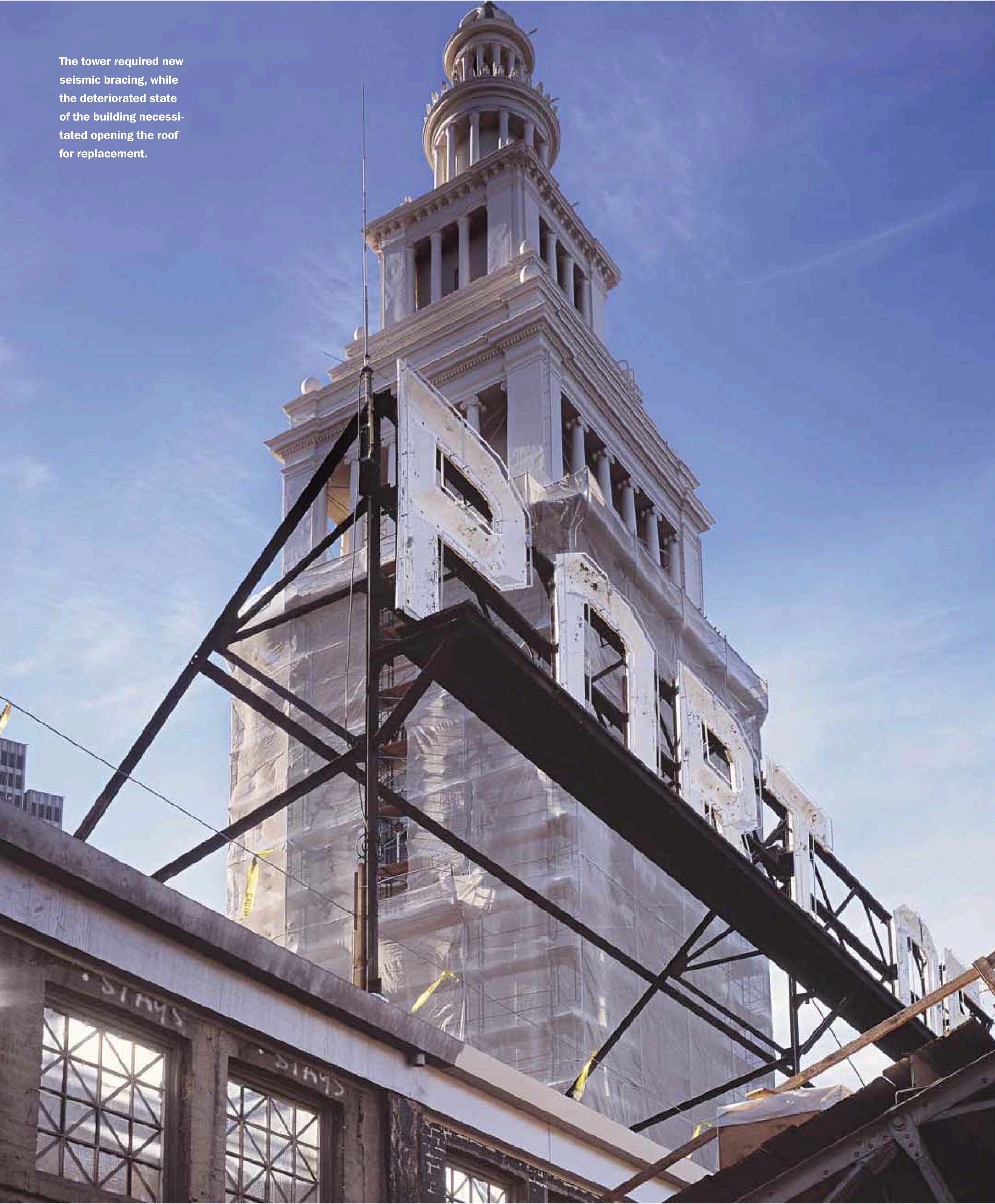
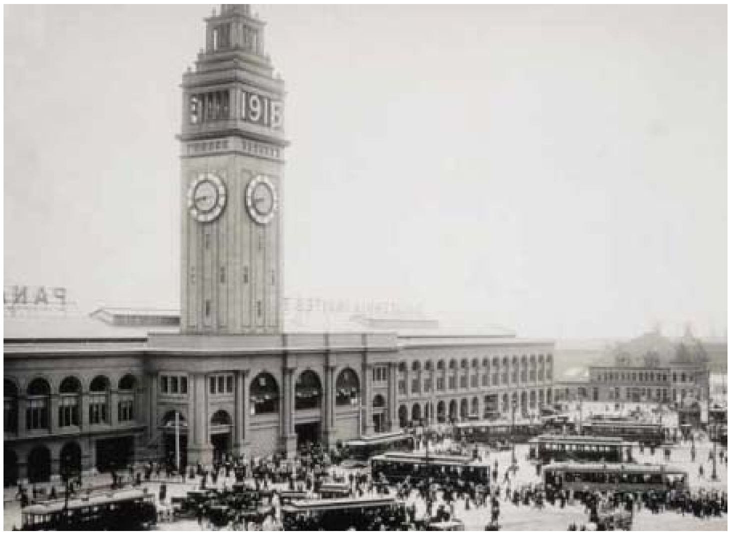
The tower required new seismic bracing, while the deteriorated state of the building necessitated opening the roof for replacement.



PROJECT DIARY Surviving controversy, SMWM's quiet mix of old and new has returned San Francisco's FERRY BUILDING to the center of urban life

By John King

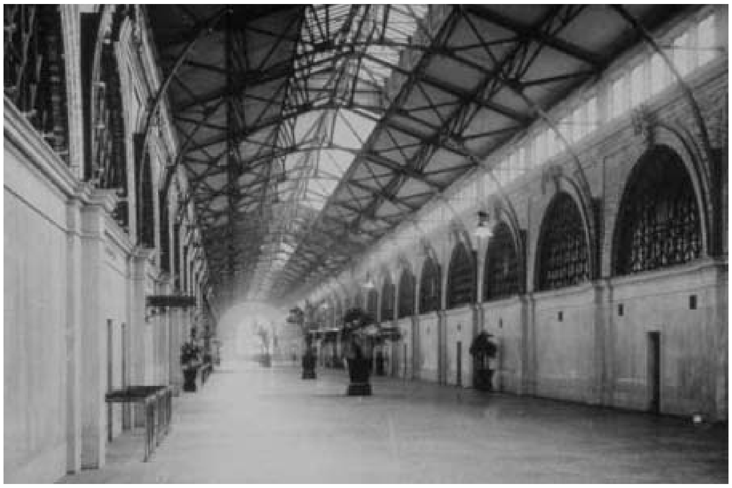
Every city has a building like San Francisco's Ferry Building. It's a landmark, but long ago lost much of its reason for being. Still, everybody loves it so much, no one can agree on what to do with it. In the Ferry Building's case, it took almost 25 years of trying. Along the way, partisans disagreed about the degree to which restoration had to be true to the past or recognize the future. Architect SMWM's solution isn't a pure gesture of architectural bravado, but cedes the spotlight to an intriguing mix of uses. The Ferry Building manages to frame a unique urban life. John King tells how it happened. Oh, and you can still catch a ferry. James S. Russell



1898–1959: A landmark rises and falls—into disuse

As the dawn of the 20th century approached, San Francisco had become the ninth-largest city in the nation, but it sat atop a peninsula with no bridges—just a makeshift ferry depot described by port officials as "a wooden shed in front of an assortment of small buildings." To rectify this, state voters in 1892 approved a $600,000 bond to build an ornate terminal at the foot of Market Street. San Francisco architect A. Page Brown designed a three-story, sandstone-covered structure adorned with Corinthian columns and an arched colonnade. Its 245-foot-high clock tower, modeled after the Giralda tower of the Cathedral of Seville, Spain, made the terminal an instant landmark, punctuating the vista from the city's most important boulevard.

Brown died before the start of construction—after being thrown from his horse—but on July 13, 1898, the first ferryboat pulled along one of the new terminal's gangways. Commuters poured into a second-floor hall underneath a 660-foot-long nave illuminated by skylights that ran the length of the building. Its tile mosaic floors included an image of the Great Seal of California.



The Ferry Building was once a major transportation hub (above) delivering passengers to an elegant nave (left).

The Ferry Building withstood San Francisco's devastating 1906 earthquake. Traffic burgeoned to 100 million annual passengers as the city grew. But when the Bay and Golden Gate bridges opened within six months of each other in 1936, this icon became instantly obsolete.

Most ferry service vanished by 1941. A 1950s renovation filled the building with modern office space, but at high cost: An additional floor was crudely inserted into the great nave and the bay facade was "modernized" beyond recognition. The thick concrete lines of the Embarcadero Freeway cut the Ferry Building off from Market Street in 1959, leaving only the clock tower visible.

John King is the urban design critic for the San Francisco Chronicle.

Project: *The Ferry Building, San Francisco*
Architects: *SMWM (lead)—Cathy Simon, John Long, Dan Cheetham, Andrew Wolfram, Eva Belik, Scott Ward, Dick Potter; Baldauf Catton Von Eckartsberg Architects (retail); Page & Turnbull (preservation)*
Consultants: *Rutherford & Chekene, Structural Design Engineers (structural engineers); Anderson, Rowe & Buckley (mechanical, plumbing engineers); Decker Electric (electrical)*
Contractor: *Plant Construction*

PHOTOGRAPHY: © CALIFORNIA HISTORICAL SOCIETY (THIS PAGE); RICHARD BARNES (OPPOSITE)

As construction proceeded, surprisingly little of the original Ferry Building fabric proved salvageable. A continuous second-floor bay was added on the water side.

1980: A grand plan

The Port of San Francisco, seeking to revitalize the city's now-derelict downtown waterfront, chose a developer who proposed to make the Ferry Building a centerpiece of a vast festival marketplace that includes piers to the north and south. The project's size—internationally themed shops opening onto an outdoor dining arcade with a historic pier turned into a parking garage—sparked fierce public opposition, prompting lawsuits on both sides of the deal. The legal battle took 11 years to resolve. During those years, the building housed the port's offices and a world trade club but continued to deteriorate. In 1991, the Embarcadero Freeway was razed after being damaged by the 1989 Loma Prieta Earthquake, restoring the terminal's prominence in the cityscape.

1998: The port tries again

Developers were again asked to submit proposals for reviving the faded jewel as the "elegant centerpiece of the waterfront." The winning team included Equity Office Properties Trust, the nation's largest commercial landowner, and Wilson Meany Sullivan, a San Francisco developer that specializes in small retail projects. The firm of SMWM (Simon Martin-Vegue Winkelstein Moris) headed the architectural design effort in collaboration with Baldauf Catton Von Eckartsberg Architects and preservation specialists Page & Turnbull.

Among a field of four contenders, the team stood out for its detailed vision of a building packed with uses that went beyond the usual offices and stores to include a marketplace oriented to local food producers and a prominent role for an ongoing farmers market.

The architecture proved equally important; no other developer proposed to fully restore the skylit nave. The team also intended to cut two long openings through the historic tile mosaic of the second floor so that daylight, filtered by the elegant tracery of the nave's trusses, could pour down to the ground-level marketplace—formerly storage space—from skylights.

Privately, lead architect Cathy Simon imagined cladding the offices on the second floor with a mullionless wall of glass, a crisp, contemporary note to give the much-altered bay-facing side of the building a dramatic new presence.

2001: What deserves preservation?

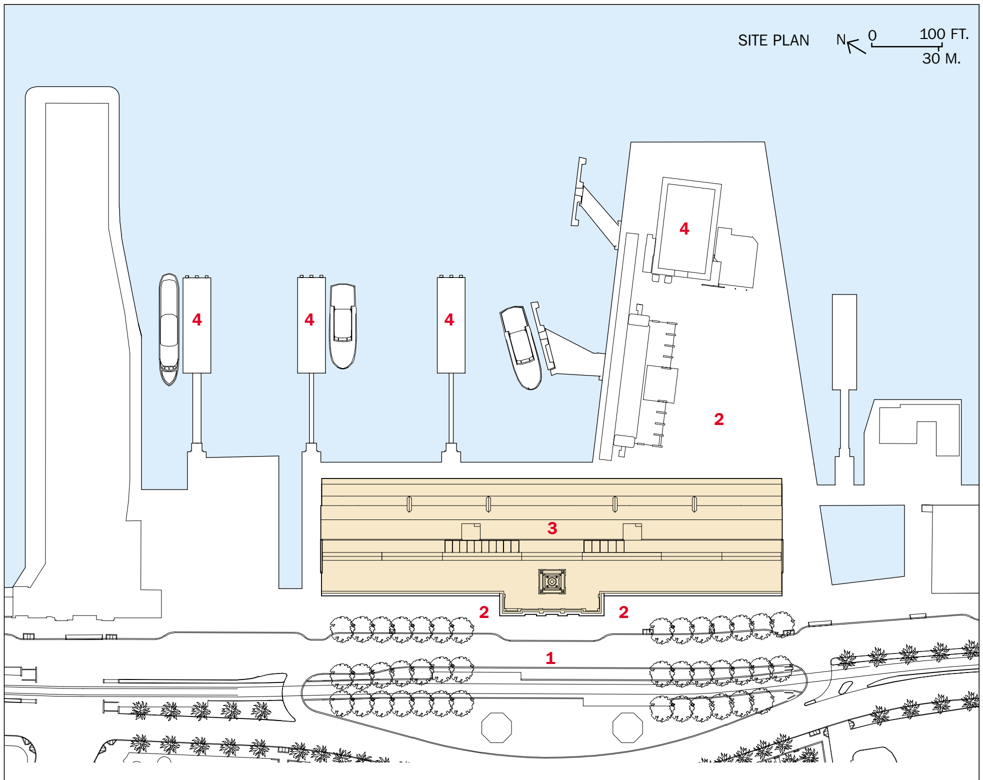
In a city that vocally treasures its landmarks, these changes provoked controversy. To bring daylight down to the marketplace, the developers wanted to remove seven bays of the nave floor on each side of the state seal, creating two 30-foot-by-210-foot-long incisions; regulators at the state Office of Historic Preservation wanted each cut limited to three bays, or 90 feet. And since the project financing scheme included preservation tax credits, official blessing was essential.

The team appealed to National Park Service officials in Washington. After a contentious hearing, recalls Jay Turnbull, "they said 'we'll offer you five [bays],' and everyone took it. By then, nobody wanted to jeopardize the outcome."

By the time construction began in March, it had become clear that alterations over the decades had left little usable original material. The graceful arches in the nave, for instance, are refaced in 22-foot-high panels made of glass-fiber units cast by molding a surviving arch.

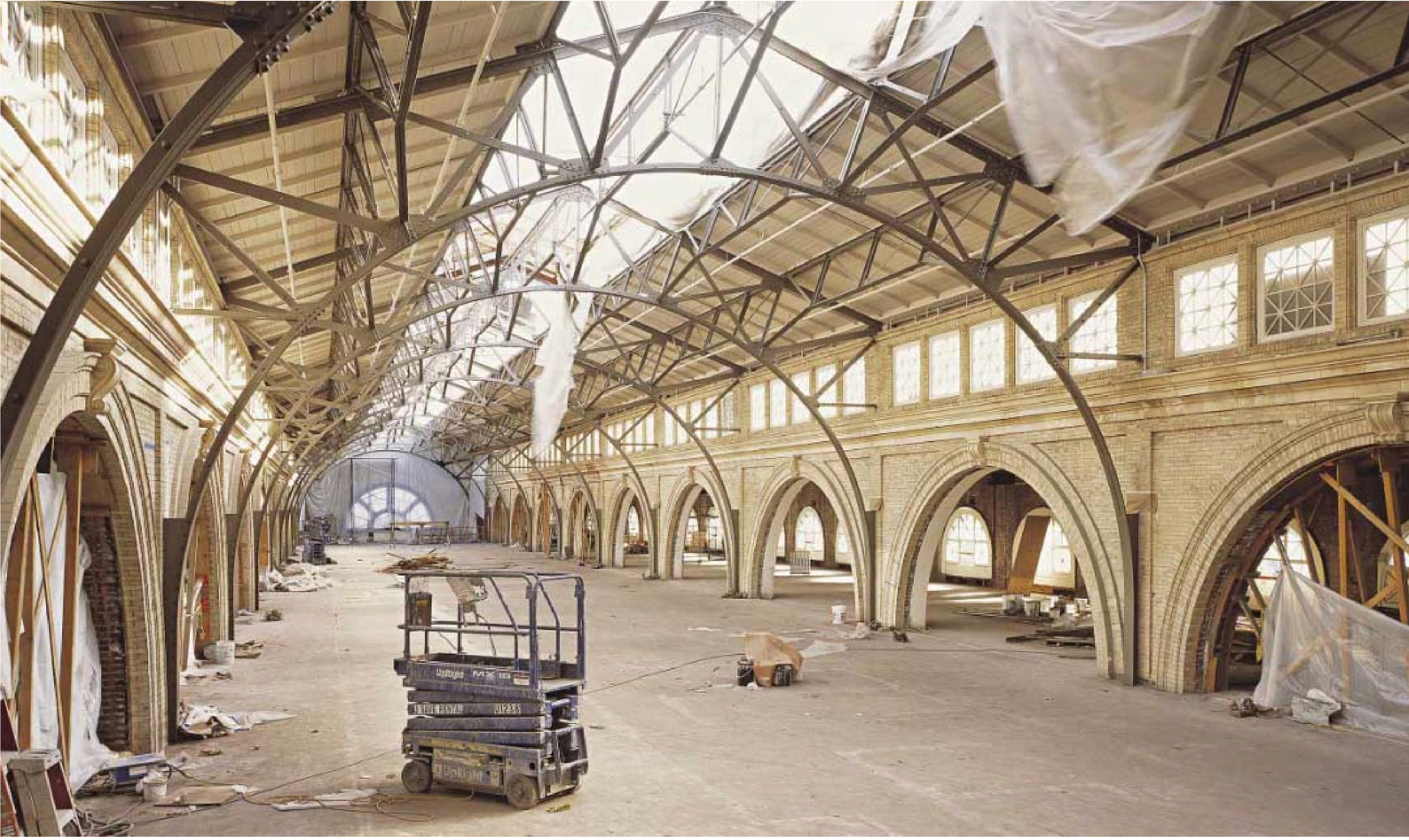
The final design of the bay facade is far more conservative than Simon had wished. There are modern touches—a metal-clad second-floor addition cantilevers out 10 feet above a new waterfront promenade (page 173)—but the overall look is restrained.

Besides worries that a conceptually daring glass wall would rile preservationists already wincing at the second-floor incisions—why pick

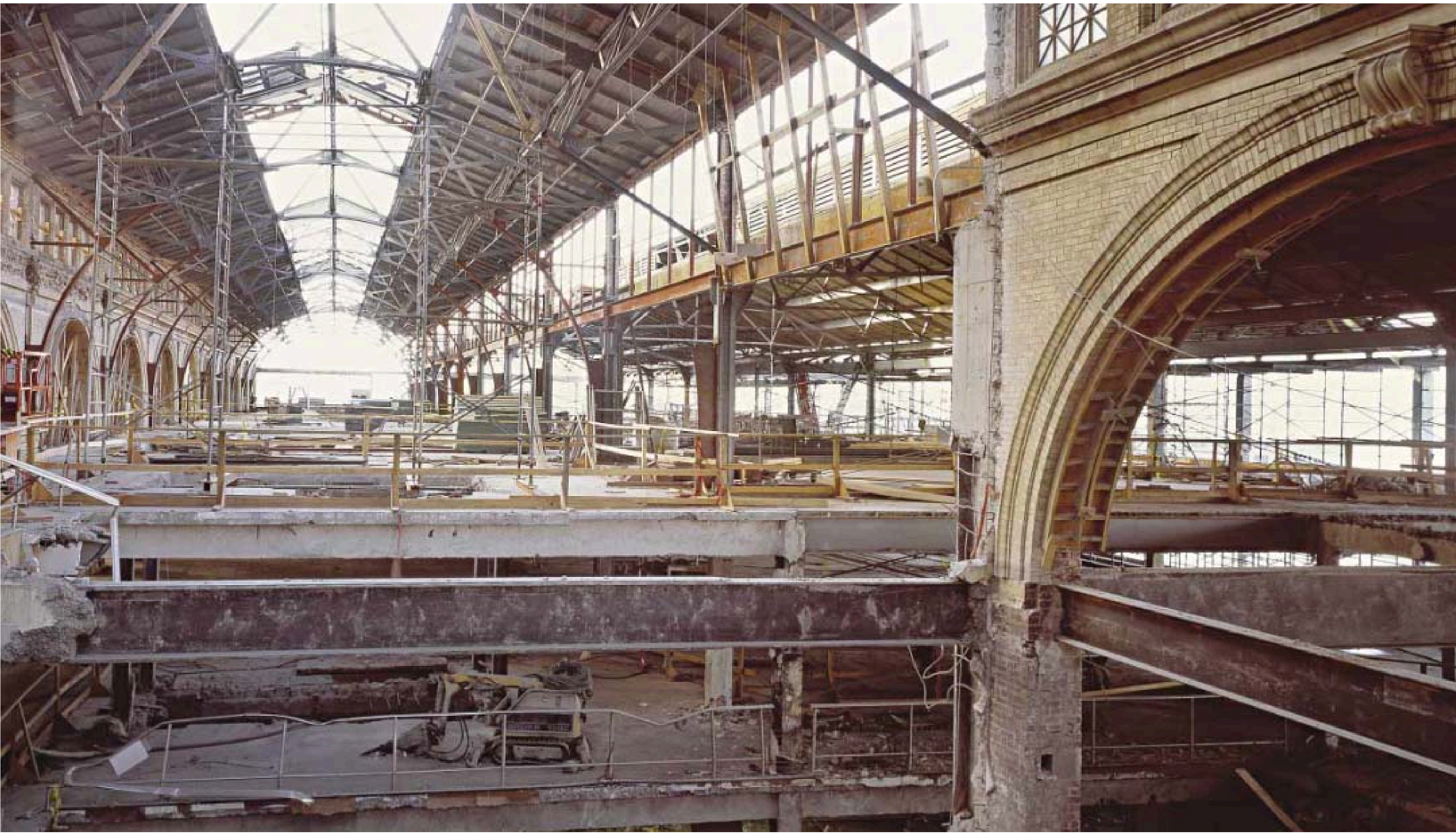


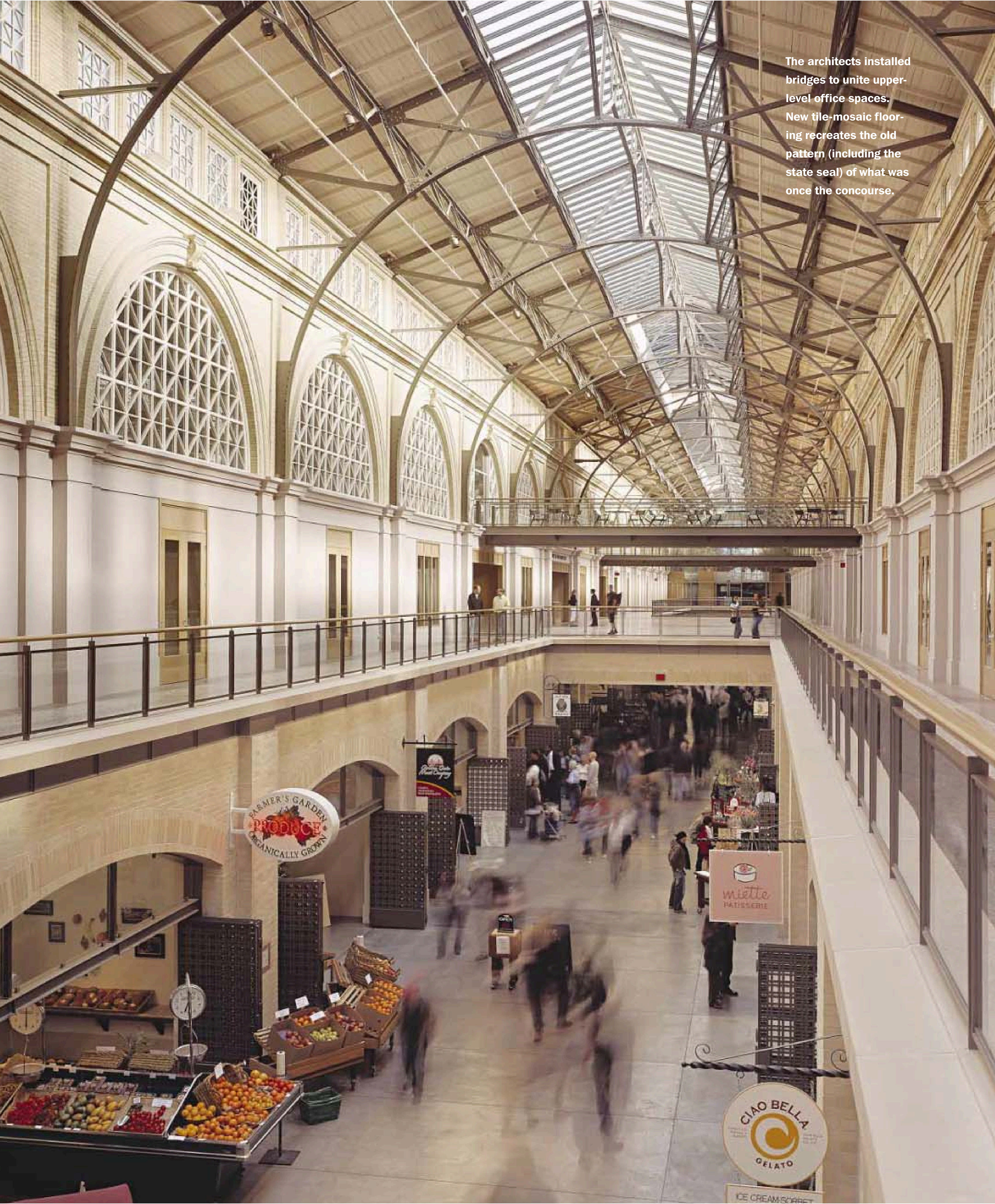
1. *Plaza*
2. *Farmers market*
3. *Ferry Building*
4. *Ferry slips*

PHOTOGRAPHY: © TOM PAIVA (TOP); RICHARD BARNES (OPPOSITE TWO)



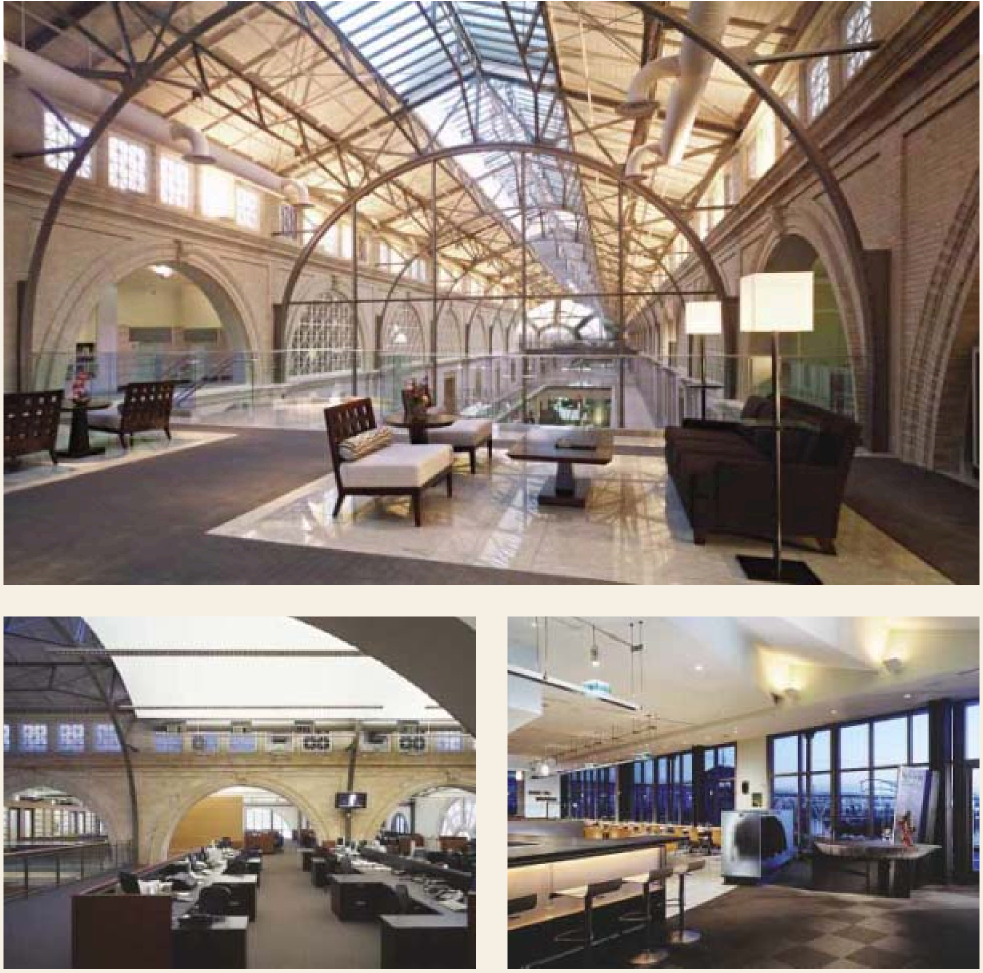
After new seismically beefed-up framing was installed (below), the great arches were rebuilt with replica units over a new slab (above).




FARMER'S GARDEN
PRODUCE
ORGANICALLY GROWN
miette
PATISSERIE
CIAO BELLA
GELATO
ICE CREAM/SORBET

The architects installed bridges to unite upper-level office spaces. New tile-mosaic flooring recreates the old pattern (including the state seal) of what was once the concourse.

Commentary: Playing It Safe Pays Off



Tenant architects played off the building: law offices for Coblentz, Patch, Duffy & Bass, by Aston Pereira (top), and for Stone & Youngberg, by Studios (above left); the Slanted Door, by Lundberg Design (right).

The $100 million restoration of the Ferry Building is so successful because old and new are fused in such a way that they can't be separated—and the whole is greater than the sum of the parts.

That's no easy accomplishment for a building that retained such a strong hold on Bay Area imaginations, even in its faded decades of irrelevance. It symbolized the glories of the city-that-was, though modern office towers dwarfed it and freeways drew people well beyond San Francisco's rugged peninsula. Its elegant campanilelike tower still draws the eye away from the much taller buildings nearby.

The triumph is even more striking in light of how many hands tinkered with the project along the way: port officials, state regulators, and historic-preservation officials all left their imprint on the final result, as well as an array of private interest groups ranging from bicyclists, who wanted to be able to walk their bikes through the building, to leaders of the Bay Area food scene, who wanted proof that the developer wasn't trying to pull a fast one and slide a predictable list of franchises in at the last minute. All this could have compromised the final product; instead, it made it stronger.

But the restoration does more than polish up an icon; it has spawned new urban life that is utterly in sync with today's Bay Area. Besides paying tribute to the past, and giving visitors access to the water via a 30-foot-wide promenade between the landmark and the bay, the Ferry Building serves as a catalyst. The marketplace, enhanced by the farmers-market stalls, embodies a local ethos. Here the purchase of a round of cheese (ideally from local goats fed organic grain and free to roam on land preserved from sprawl) is a cultural statement.

The basic architecture of the space defers to the tone set when the building opened in 1898. The low-key contextualism of the new retail space has columns and arches cloaked in yellow quarry tile. But the concrete floor, a contemporary note, with the exposed structural beams above, is an unpretentious chaser. Similarly appealing are the metal grates that fold back and remove the need for storefront doors and windows.

What catches the eye is the colorful clutter within the wide-open storefronts: wicker baskets filled with red onions, dried herbs hanging from a trellislike ceiling, the festive blade signs that display oversize mushrooms or a dour-looking fish.

The controversial idea to cut through the second floor to tie the interior together is a revelation rather than a sacrilege: The incision unveils the long-hidden truth that this former terminal is an urban structure. It is designed to be part of the working city, to hum with activity and life.

As for the discarded notion of a glass wall facing the water, both sides are right. The contemporary detailing that Cathy Simon wanted could perhaps have resulted in a wonderful juxtaposition between past and present—especially since what took shape instead is demure to a fault. But the Ferry Building isn't about the waterside facade. It is about the overall experience of place, and now the triumphant return of urbanity to the bay.

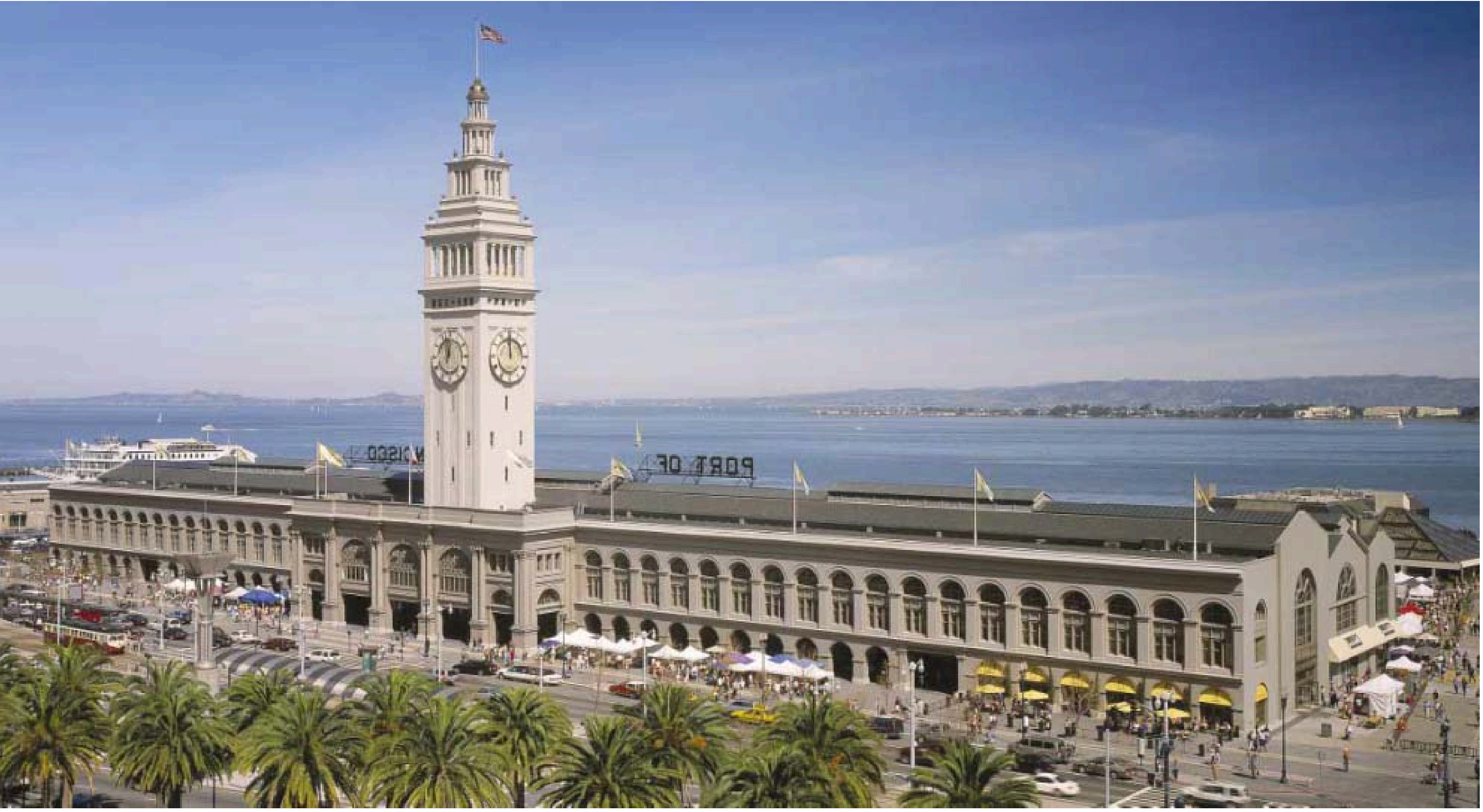
Yes, San Francisco is a city that for all its emphasis on personal freedom frequently throws a dull blanket on architectural expression. Contextualism is too often valued more than creativity. But in this case, playing it safe paid off. *J.K.*

New openings in the floor bring daylight to the marketplace, which features locally produced foods.

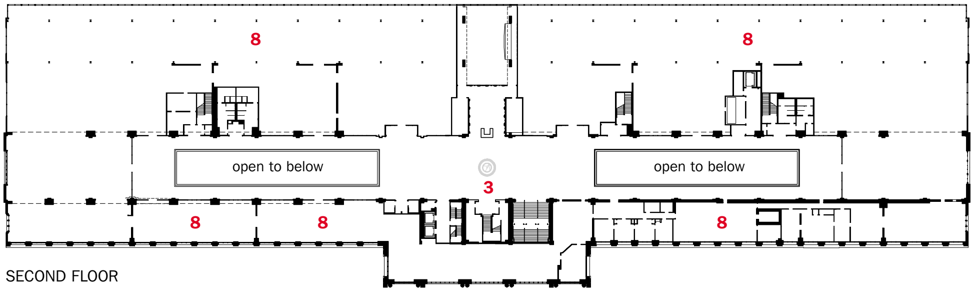
PHOTOGRAPHY: COURTESY ASTON PEREIRA, TIM GRIFFITH, STUDIOS ARCHITECTURE (TOP THREE, CLOCKWISE FROM LEFT); © RICHARD BARNES (BOTTOM AND OPPOSITE)

The two floors of office space—the public areas drenched in the city's diffused light—remain serene above the retail bustle. They leased well in a slow office market. Being able to buy a dozen kinds of olive oil just a floor away may be more of an attraction to tenants than leasing agents ever suspected.

PORT OF SAN FRANCISCO



FRANCISCO
PORT OF



8
8
open to below
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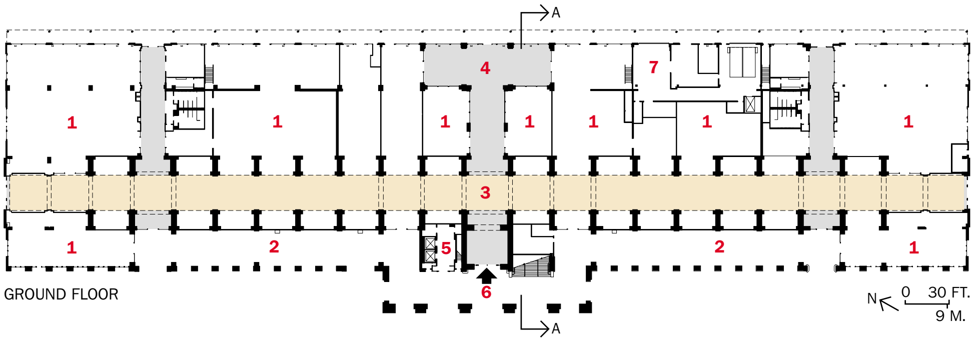
SECOND FLOOR



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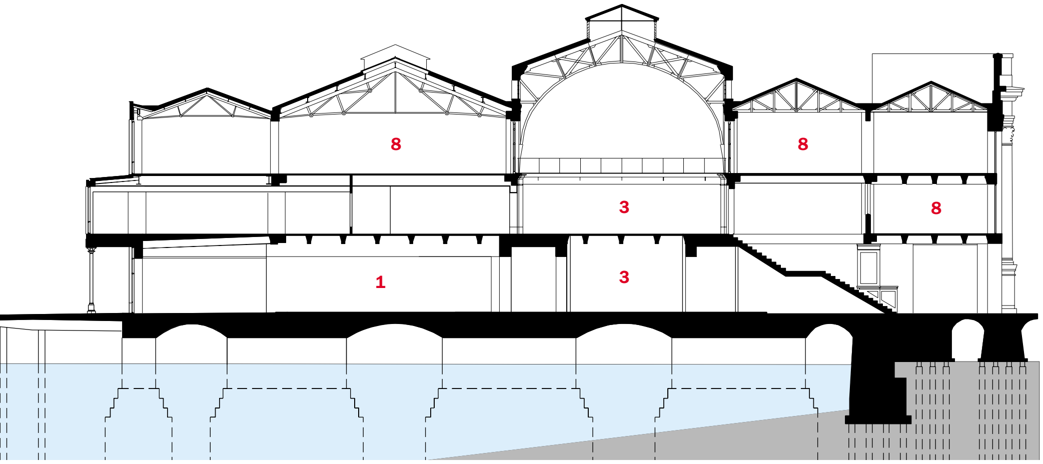
GROUND FLOOR



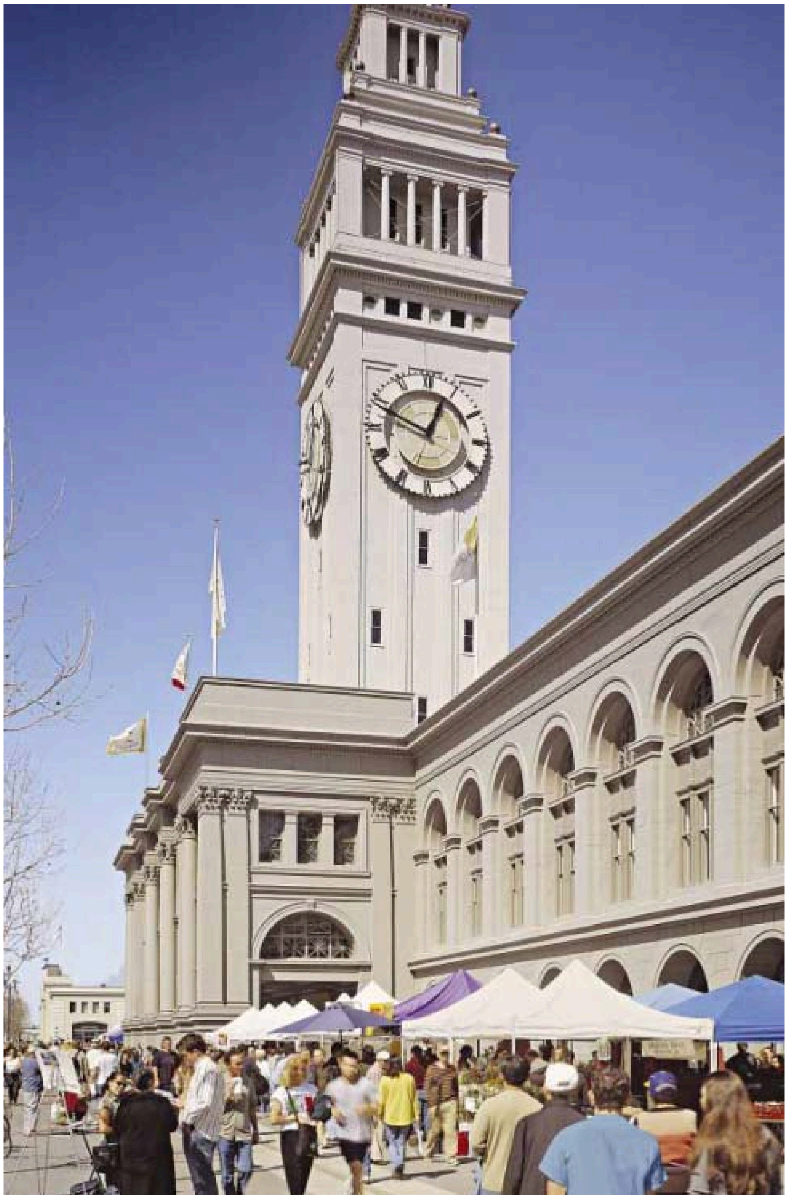
8
8
3
8
1
3
0
10 FT.
3 M.

SECTION A-A

1. *Marketplace*
2. *Farmers market*
3. *Nave*
4. *Ferry waiting*
5. *Office lobby*
6. *Main entry*
7. *Loading*
8. *Office*

The restored building faces a new light-rail line installed where an elevated freeway once ran (above). Four days a week, the structure provides a dignified backdrop to a lively farmers market. It wraps both the city-facing side (opposite, bottom) and the water side (opposite, top two).

PHOTOGRAPHY: © RICHARD BARNES (PRIOR SPREAD, THIS PAGE, AND OPPOSITE, TOP RIGHT AND BOTTOM); NIC LEHOUX (OPPOSITE, TOP LEFT)



another fight?—the developers worried that the juxtaposition of old and new wouldn't click. "When something like that is done perfectly, it's the best thing in the world," project manager Chris Meany says, mentioning Norman Foster's transformation of the Reichstag in Berlin. "Even slightly trading down results in a cold, antiseptic space." Simon now calls the decision to play it safe "my biggest disappointment," adding, "Here is a building that bookends the 20th century, so why not have the best contemporary expression from then and now?" But Meany has no regrets: "I finally realized that we're not about creating an intellectual study for architects. It's about creating a place where the average Joe will say, 'wow, this is wonderful.' "

2004: Will it work?

In the two years between the start of construction and the soft opening in the summer of 2003, San Francisco office rents plunged while vacancy rates climbed past 20 percent. Retailers grew skittish after the September 11 terrorist attacks. But today the office and retail space is fully leased, and it is clear that the commercial mix and the architectural merging of old and new have created a compelling waterfront magnet. Locals as well as tourists are drawn by the old icon's new shine—and a ground-level scene that emphasizes Bay Area food producers and restaurateurs.

There were glitches, inevitably: Health inspectors blocked plans to give fully open-air access from the marketplace to the farmers market, citing a prohibition on the 'outdoor' sale of meat and fish. No matter. For the first time in more than 50 years, the Ferry Building has again become a bustling presence in the daily life of San Francisco. ■

Sources

Exterior cleaning/repair: *Prosoco*

Roofing: *Certainteed; Lawson*

Windows: *Woodworks (wood); AGA, PPG, Carvist (aluminum)*

Storefronts: *Architectural Glass and Aluminum; Vistawall*

Glass-fiber panels: *Kreysler*

Tile: *Quarry Tile*

Window treatment: *Mechoshade*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

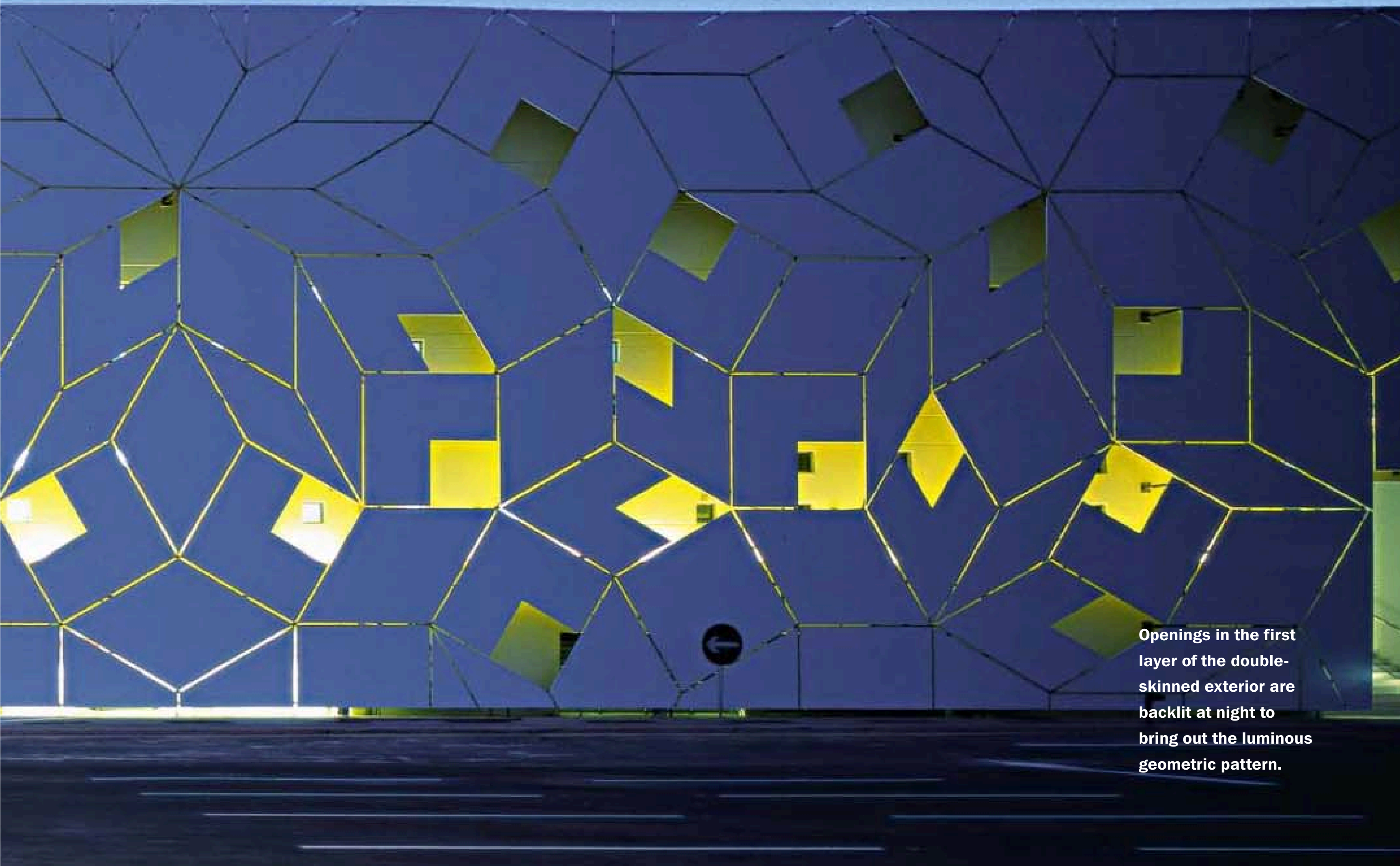
Kazuhiro Kojima + Kazuko Akamatsu/C+A and **Arata Isozaki & i-NET** create a luminous structure for the **LIBERAL ARTS AND SCIENCE COLLEGE** on a new campus in Qatar

By Naomi R. Pollock, AIA

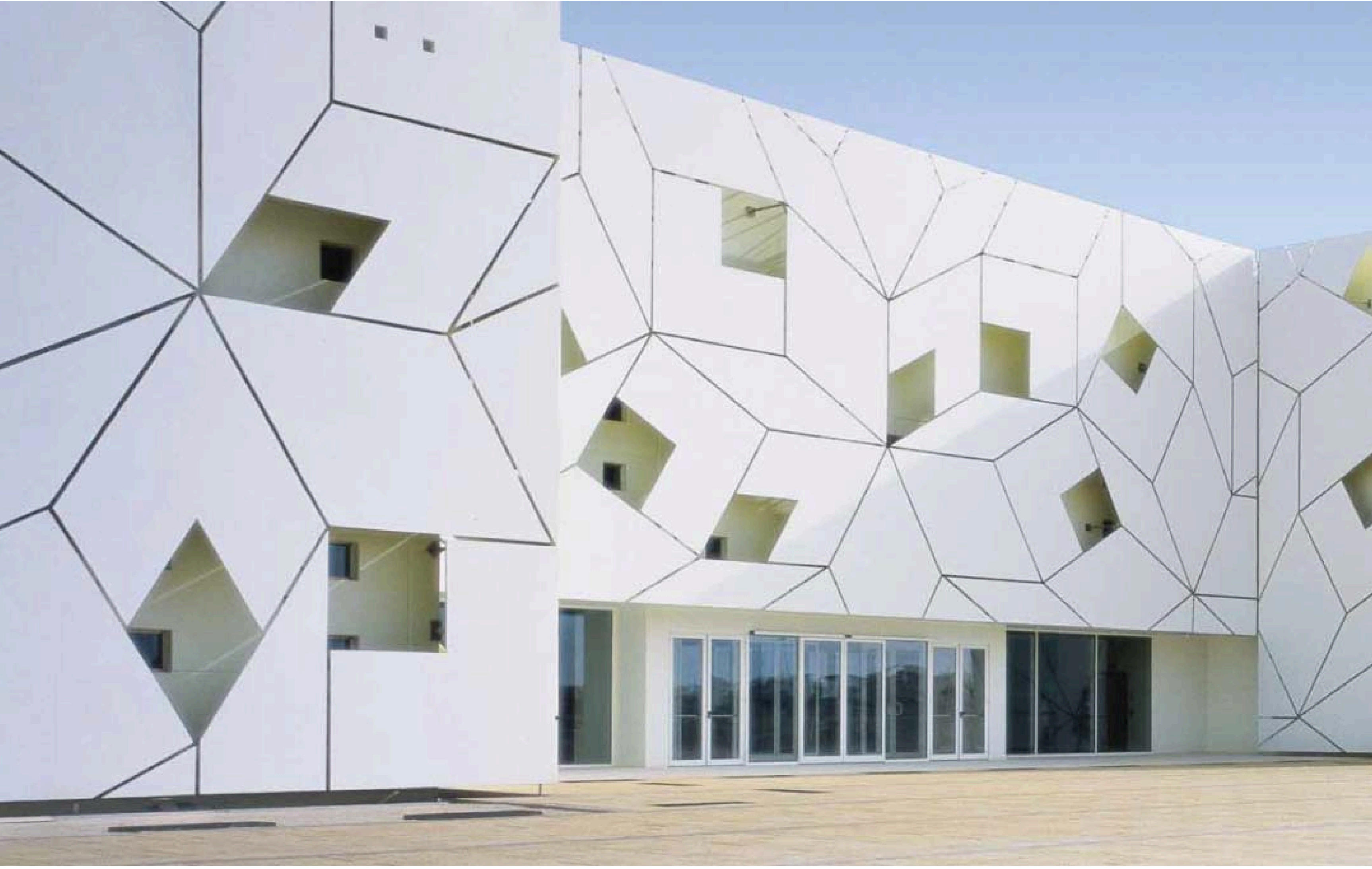
You can't take Qatar to the American university, but you can take the American university to Qatar. So thought the oil-rich country's Foundation for Education, Science and Community Development when it decided to build the 2,400-acre Education City in 1997 at the edge of the nation's capital of Doha. In order to provide top-notch education for this Islamic country on the Persian Gulf, the foundation decided the complex should be composed of branches of existing highly respected institutions, rather than trying to start a new university from scratch. So far, American universities such as Carnegie Mellon, Virginia Commonwealth, and Texas A&M, and Cornell University's Weill Medical School have become involved. Each school in the new complex is to be housed in its own architect-designed building, and all tied together with a master plan by Arata Isozaki + i-NET. The 391,410-square-foot Liberal Arts and Science College building, designed by the Tokyo firm Kazuhiro Kojima + Kazuko Akamatsu/C+A, is among the first to be completed. An appropriate launch for the entire development, the structure houses a liberal arts college affiliated with Texas A&M, as well as the Academic Bridge Program, a language program where students from all over the Arab world brush up their English before moving on to other disciplines.

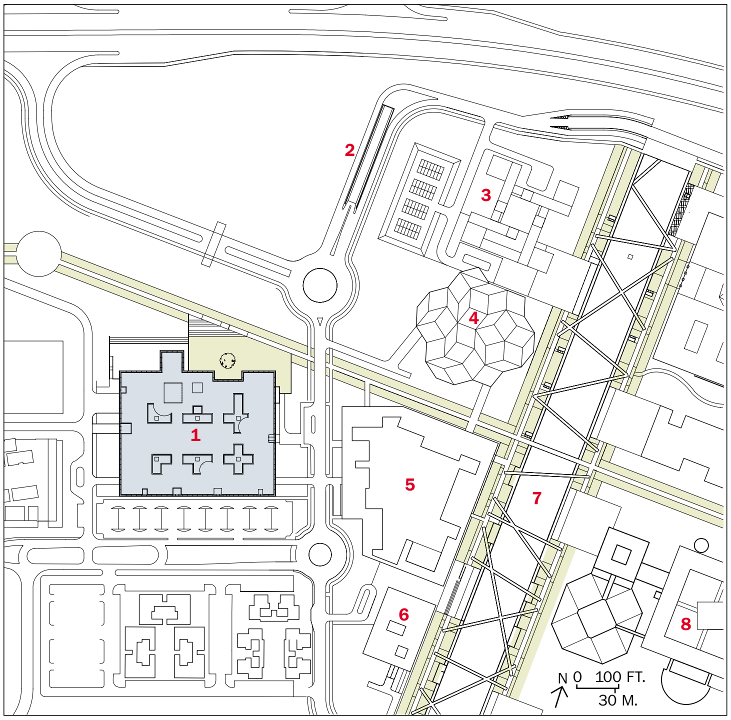
A self-contained square, the Liberal Arts and Science College building begins with a parking garage submerged partly below grade, on top of which sit two floors, each consisting of spaces with assigned functions or flexible ones. The first floor, seen as the center of student life,

Naomi R. Pollock, Special International Correspondent to RECORD, writes about architecture and design from Tokyo.



Openings in the first layer of the double-skinned exterior are backlit at night to bring out the luminous geometric pattern.





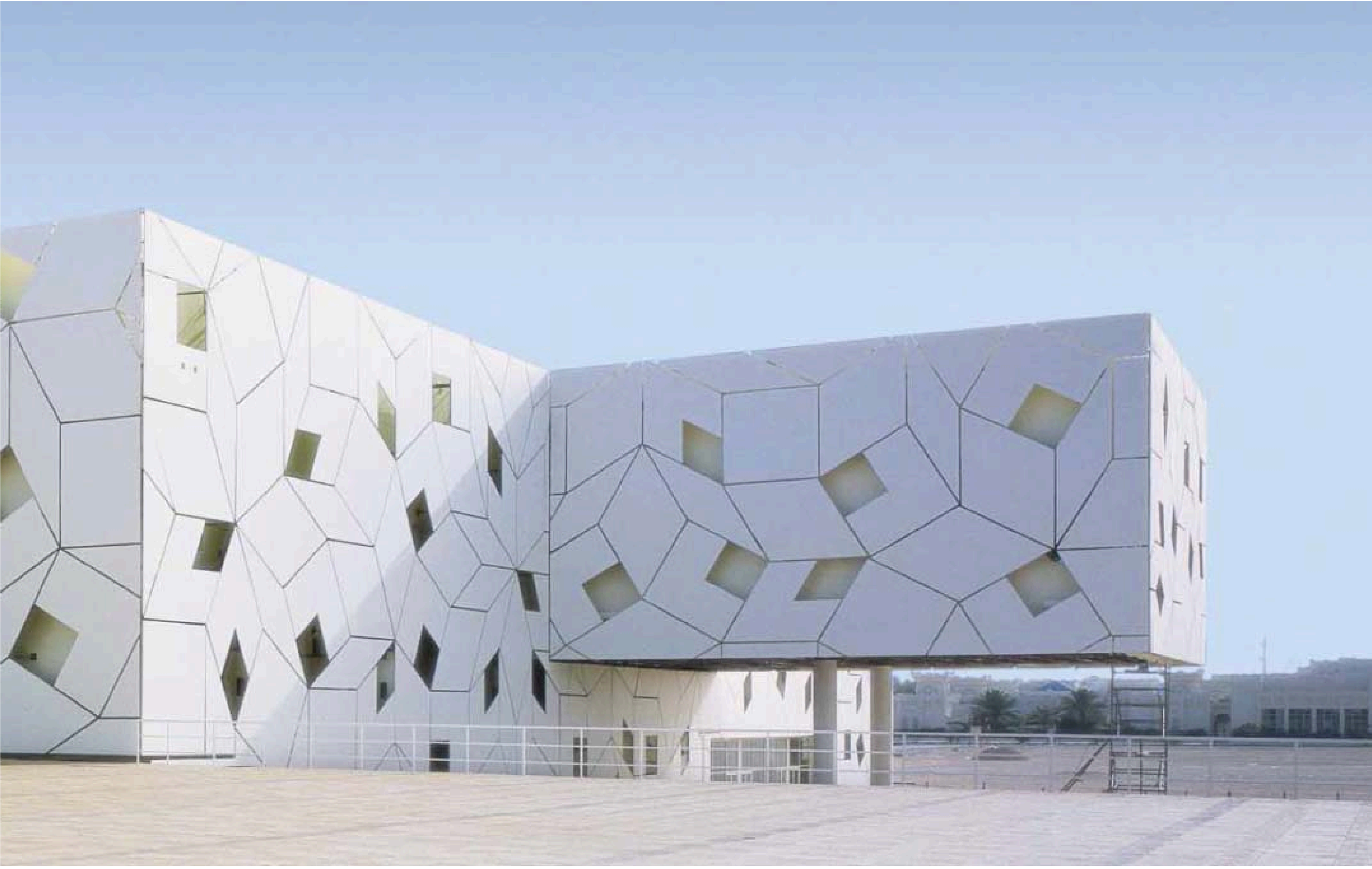
1. *LAS building*
2. *Ceremonial gate*
3. *Qatar Foundation*
4. *Central library*
5. *Student center*
6. *Faculty club*
7. *Green spine*
8. *Engineering*

contains classrooms of various shapes and sizes interspersed with the flexible learning areas where students can study or socialize. Upstairs, faculty offices ring the perimeter, while informal meeting areas where students consult with their professors and teaching assistants fill the interior. Three circular lecture halls and double-height atria, or covered "patios," penetrate the horizontal planes of the two floors.

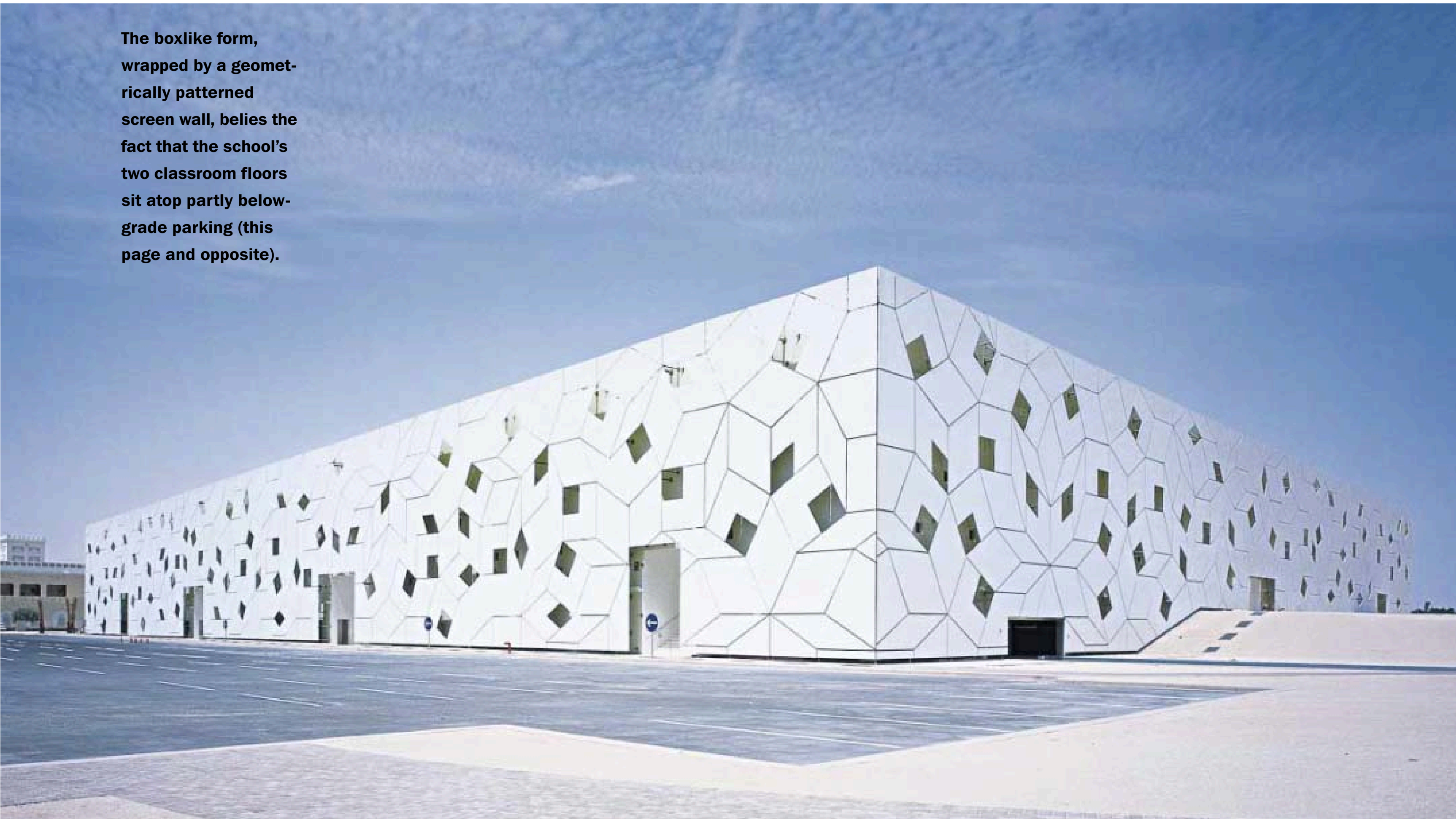
Although Kazuhiro Kojima + Kazuko Akamatsu/C+A first experimented with free-form study areas in its scheme for the Hakuo High School in Miyagi Prefecture (2001), Kojima was inspired in his balancing of open and closed spaces by the interior courtyards and gardens he visited in his extensive travels in the Middle East. A professor at the Tokyo University of Science, Kojima had been a member of the firm since it was formed in 1985 under the name Coelacanth Architects. In 1998, the practice was reorganized and renamed C+A, and Akamatsu became a partner in 2002. During this time, the firm (as Coelacanth Architects and C+A) designed several schools in Japan. Its experience in school design coupled with Kojima's interest in the Arab culture persuaded Isozaki to choose C+A for this project.

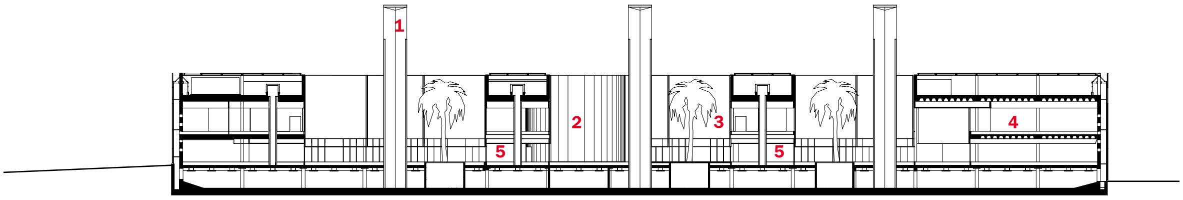
Project: *Liberal Arts and Science College, Education City, Doha, Qatar*
Client: *Qatar Foundation for Education, Science and Community Development*
Design architect: *Kazuhiro Kojima + Kazuko Akamatsu/C+A*
Master plan, project director: *Arata Isozaki & i-NET—Shuichi Fujie, project director*
Executive architect: *Perkins + Will*
Project management: *Shunji Nagata/Fox & Company*
Engineers: *Arup (structural); McGuire Engineers (m/e/p)*

PHOTOGRAPHY: © SHINKENCHIKU-SHA

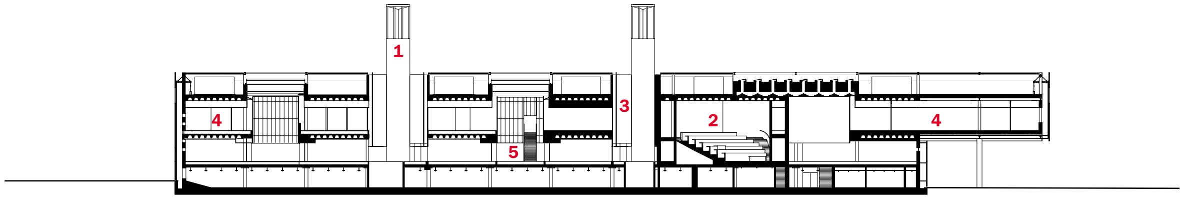


The boxlike form, wrapped by a geometrically patterned screen wall, belies the fact that the school's two classroom floors sit atop partly below-grade parking (this page and opposite).

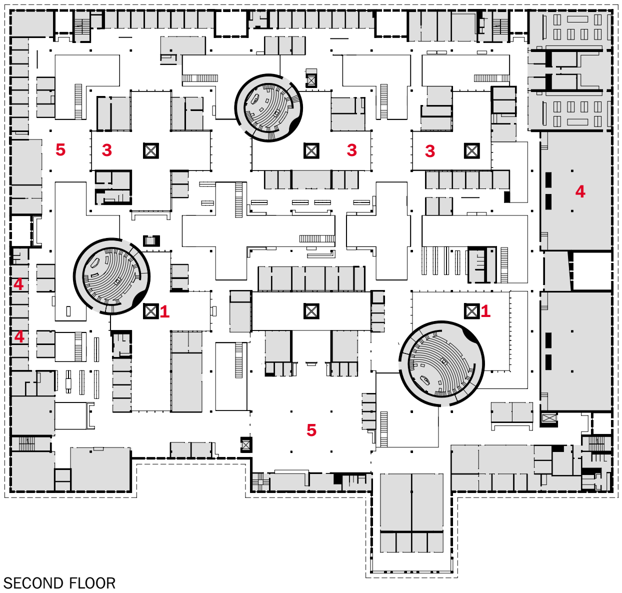




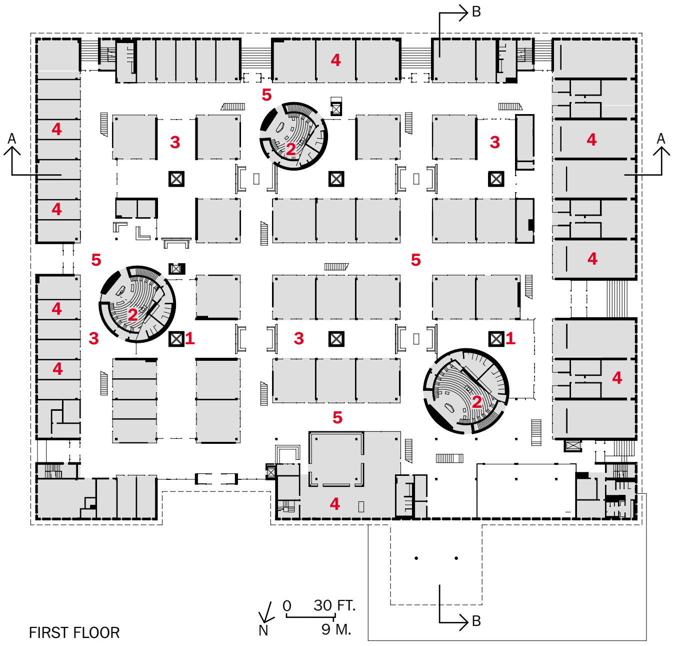
SECTION A-A



SECTION B-B



SECTION SECOND FLOOR



FIRST FLOOR

1. *Wind tower*
2. *Circular auditorium*
3. *Indoor patio*
4. *Fixed spaces/ classrooms or offices*
5. *Flexible learning areas*

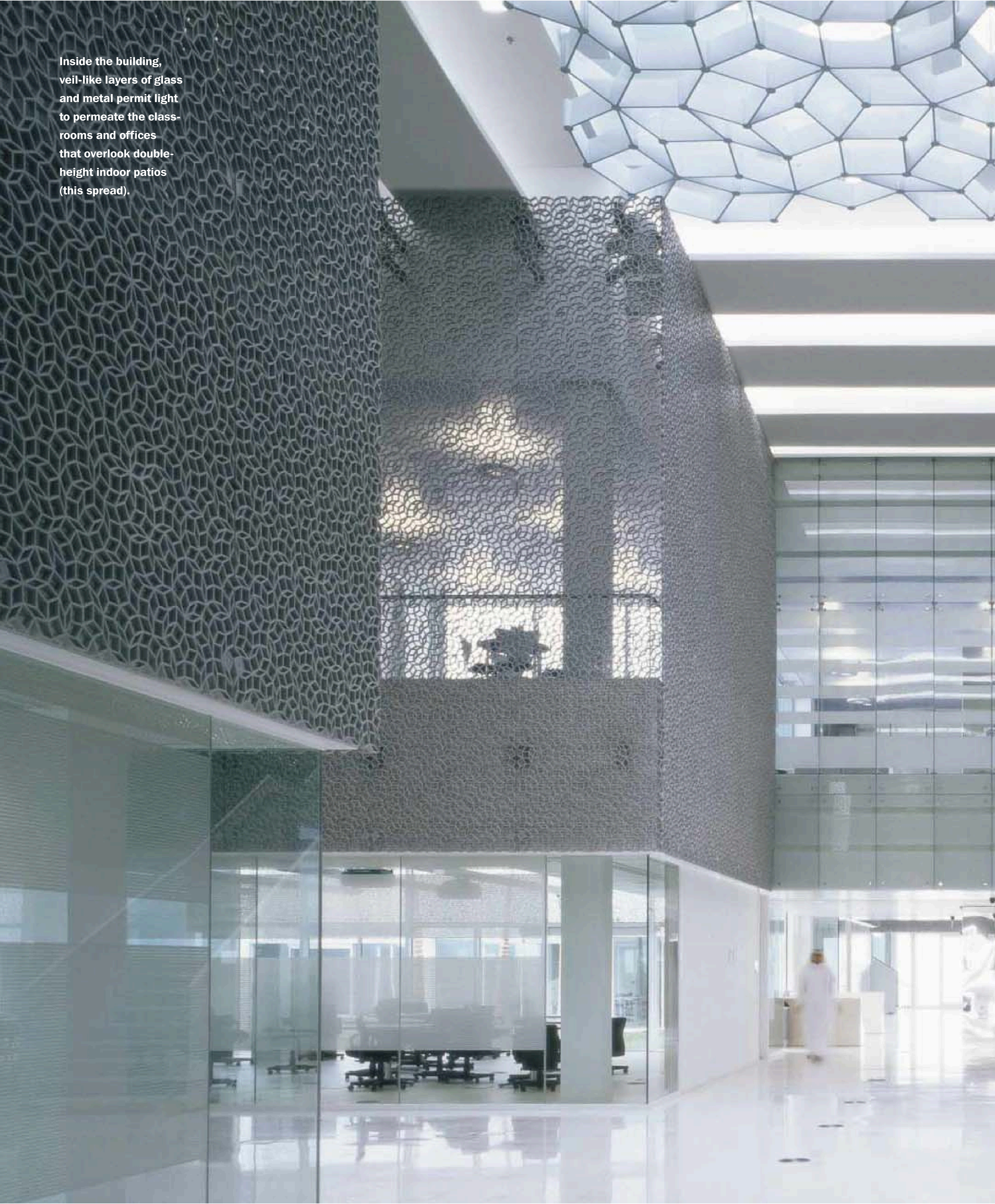
Screen walls of pierced glass-fiber-reinforced concrete panels shield the building from the harsh sun by day, and glow with illumination at night (opposite). Metal screens and glass walls offer an elegant combination of transparency and translucency (opposite, below). Inside the building, spaces are divided between fixed uses for classrooms and offices (black on the plan, left), and flexible learning areas and indoor patios (white on plan).

Isozaki's work for the emirate extends beyond the university: He served as the architect for Qatar's national library, its national bank, and a 215,280-square-foot villa for His Highness Sheikh Hamad Bin Khalifa Al Thani. As part of his role in the Education City, which was initiated by Her Highness Sheikha Mozah Bint Nasser Al Missned, Consort of His Highness, the Emir, Isozaki is not only in charge of the master plan, but is designing the auditorium/convention and exhibition center and the foundation headquarters, as well as other projects. As the sole person who presents all the work to the royal family, Isozaki officially maintains responsibility for the design. With the Liberal Arts and Science College, C+A designed the particular building, while executive architects Perkins + Will brought in structural and other related consultants and translated the scheme into working drawings for the local Qatari firm in charge of construction management. (Perkins + Will also just completed the Weill Cornell Medical College on the campus with the Tokyo firm of ADH Architects and Isozaki.)

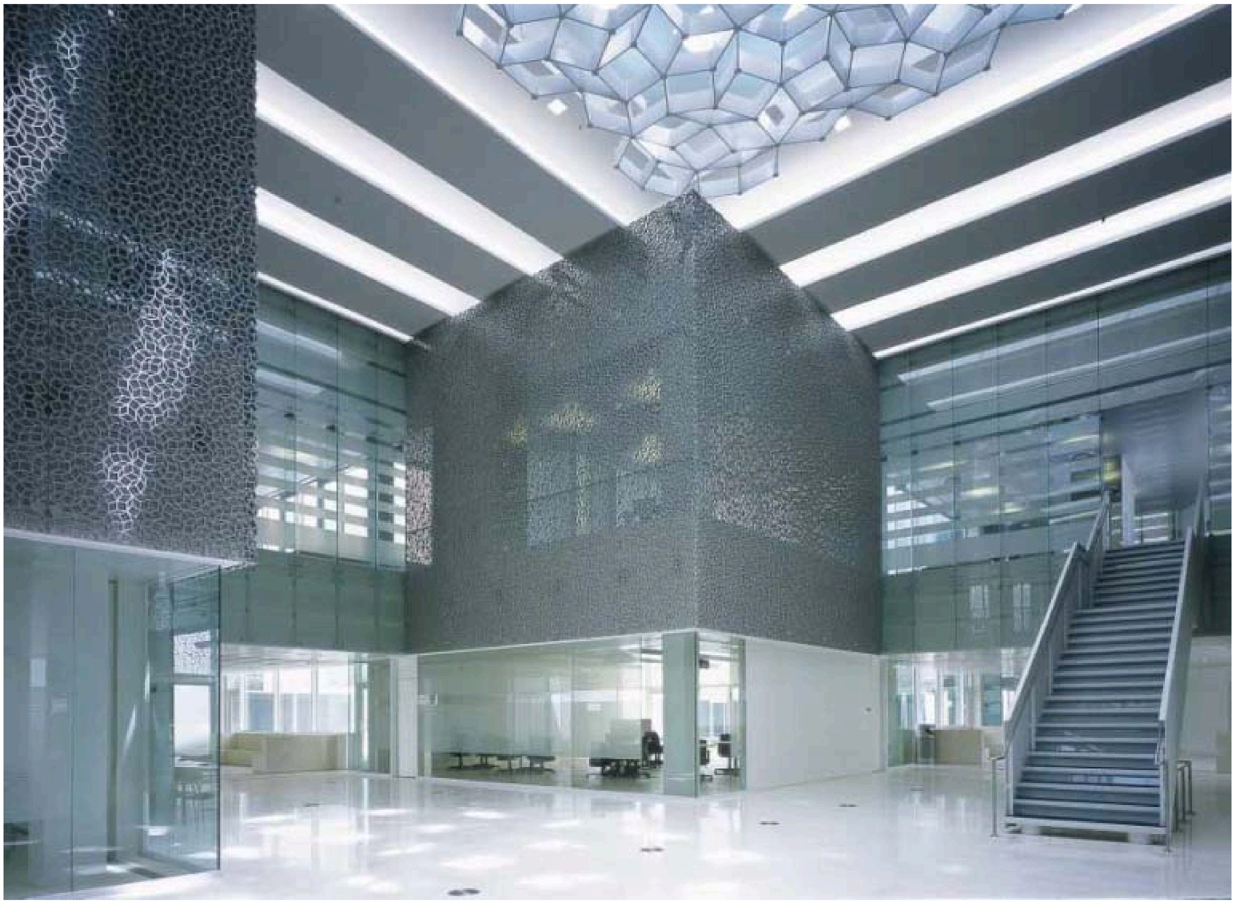
While Isozaki's master plan sets some design parameters, such as a 49-foot height restriction, the site offered Kojima and his crew little more than sand and sun for inspiration. So they took their cues from the broader context of local customs and climate. With 90 percent humidity on most days, strong winds on some days, and scorching sun every day—it almost never rains in Qatar—the climate was a force to be reckoned with.

Six wind towers evocative of the type used for capturing Gulf breezes pierce the building to draw cool air down into the car park and hot air out. To control the sun and heat gain, C+A wrapped the building's outer surfaces not once but twice. A horizontal sunscreen sits atop the solid flat roof, while aluminum louvers deflect the rays coming through the skylights. The building's walls are wrapped in two layers of glass-fiber-reinforced concrete, separated by a 3-foot gap: An intricate web of polygonal panels forms the outer wall, while a smooth surface painted yellow and punctured with small windows constitutes the inner one.

Inside the building, veil-like layers of glass and metal permit light to permeate the classrooms and offices that overlook double-height indoor patios (this spread).



Throughout the two-level interior, double-height spaces abound (right and opposite), where stairs take students and faculty to classrooms, offices, and other facilities on the building's perimeter (below). The skylights bathe the interior with a luminous glow, and light is diffused by the dramatic use of patterned metal screens and reflective surfaces.



Activated by the sun's movement, the two layers play off each other continually, changing the building's appearance throughout the day. When the sun is high, the outer planes dominate and intense light washes out the yellow tint behind. But when the sun is low, the two surfaces trade places: The exterior planes recede and patches of brilliant color pop out.

Though the design on the building exterior resembles Arabesque tile work, it is based on quasi-crystal geometry discovered in England in 1984. The pattern derived from manipulating the 90-degree, 60-degree, and 30-degree parallelograms seems to expand infinitely from a single center point, never repeating itself. For the elevations, the architects placed the point of origin at the building's ceremonial entrance, and laid out a segment of the pattern in plan. They then folded up the flat drawing, transposing the motif onto the walls.

In contrast to the simplicity of the design of each panel was the difficult process of constructing the walls. Since every panel is uniquely shaped and extremely heavy, it took eight workers to lift each one into place. Because a conventional frame system would have cast unwanted shadows on the inner wall, the outer panels are anchored to the roof with stainless-steel cables. Lateral ties also help transfer the load to the building's flat- and waffle-slab concrete structure.

Inside, the quasi-crystal pattern shows up on screens and covers over the skylights, whose lacy openings bathe the interior with a diffuse natural light. Since the school is Qatar's first coeducational facility, a modicum of separation along gender lines was required. To shield female students from public view, and thereby ensure their comfort, a variety of metal screens and textured surfaces create numerous translucent partitions. While social customs significantly impacted design, religious requirements principally called for a small prayer room whose outer wall is tilted toward Mecca.

Obviously, C+A's sensitivity to cultural differences was essential for the success of the project. But its building is not a simple replication of indigenous traditions. True to the intention of Education City as a whole, the architects have brought new ideas, such as the quasi-crystalline geometry and the building's double-layered exterior enclosure, to Qatar. The result is at once familiar and innovative. ■

Sources

Exterior glass-reinforced-concrete panels: *Arabesque GRC-Qatar*

Support cable: *Prisma Space Frame*

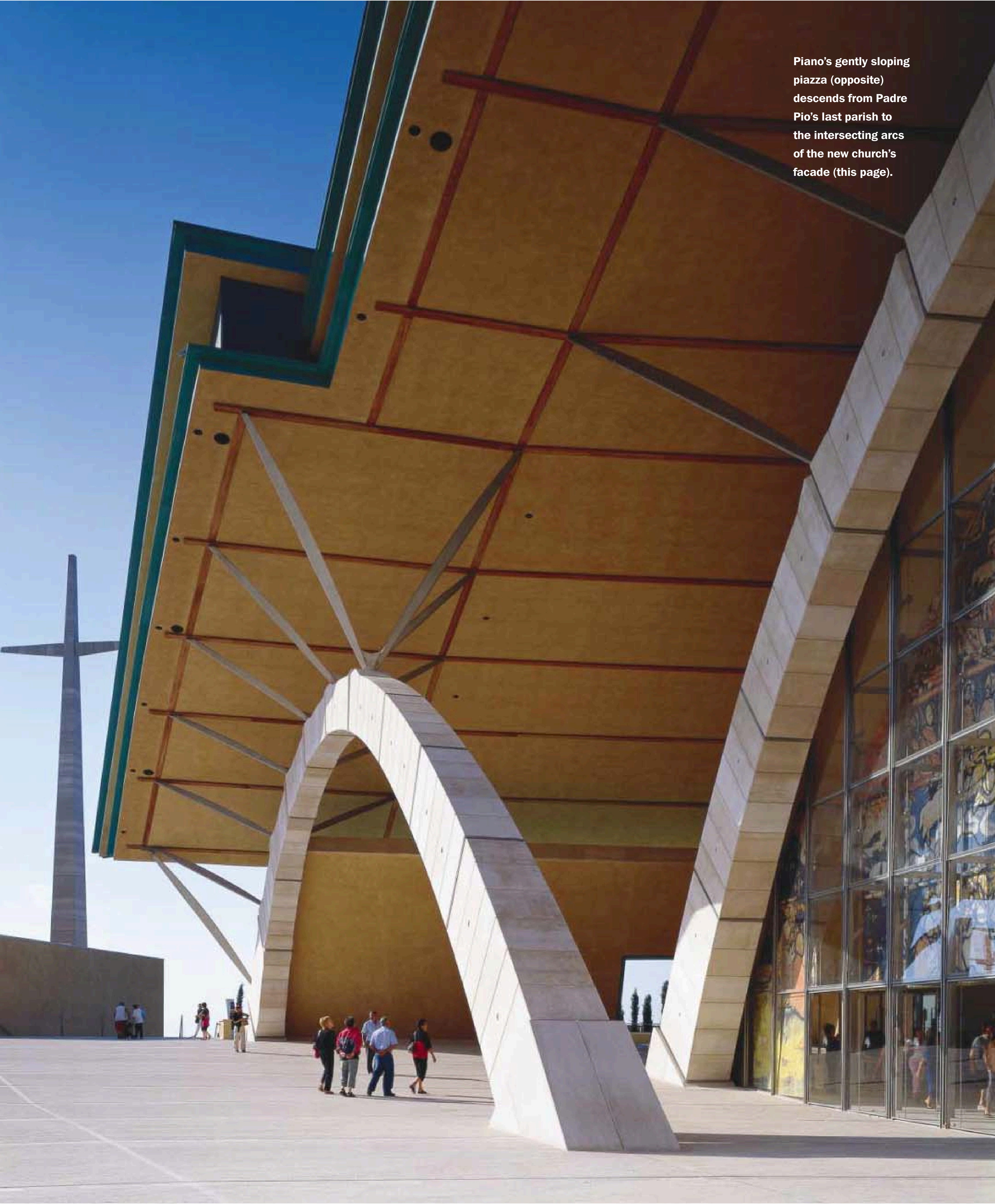
Aluminum case screens: *Alba Tower Aluminum*

Glazing: *Technical Glass & Aluminium Company*

Fiber-wrapped acoustical panel: *Kinetics Noise Control*

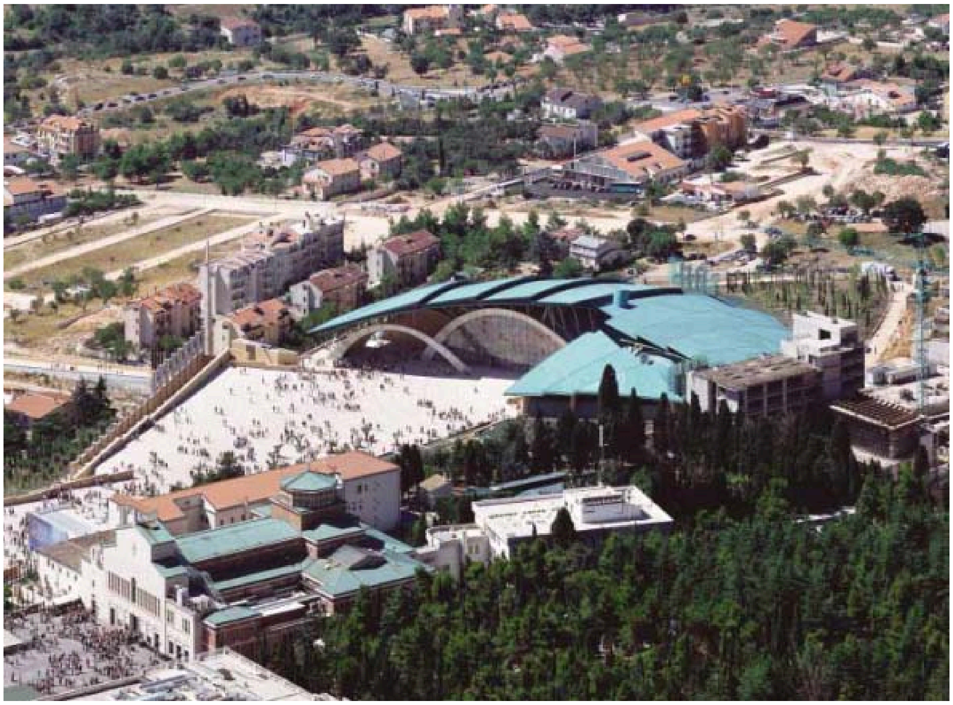
Carpets: *Interface*

For more information on this project, go to Projects at **www.architecturalrecord.com**.



Piano's gently sloping piazza (opposite) descends from Padre Pio's last parish to the intersecting arcs of the new church's facade (this page).

Against the profane, the commercial, and the mundane, **Renzo Piano** strives to create a spiritual pilgrimage site at the **CHURCH OF PADRE PIO**



PHOTOGRAPHY: © CHRISTIAN RICHTERS, EXCEPT AS NOTED

By Sarah Amelar

Along the road to the Church of Padre Pio of Pietrelcina, the saint's portrait—with his deep brown eyes, soft, gray beard, and coarse, rope-belted robe—appears over and over: on key chains, statuettes, spoons, medallions, postcards, ashtrays, crucifixes, and polyester bandanas, all brimming from souvenir shops. Small hotels, glowing at night with neon and backlit signs, also cram the arid hillside ascending to the sanctuary. Despite this active pilgrimage industry, the modest and remote town of San Giovanni Rotondo, in southeastern Italy near the spur of the "boot," still isn't easy to reach. But this past September, the month of Padre Pio's feast day, the place was clearly drawing hordes of people, often by the busload.

"All that garbage, the profanation confusing the commercial with the sacred—the man and his miracles" was one of the reasons architect Renzo Piano says he initially declined the commission to build a major new church there. "The rusticated place of Padre Pio [a Capuchin friar who died at 81 in 1968] had already been spoiled," recalls the architect. Besides, at first he considered the task impossible: How could anyone create an intimate, spiritual sanctuary with a capacity exceeding 6,500 people? But when Piano turned down the commission, his future clients responded by faxing Renzo Piano Building Workshop a different blessing every morning for a month, ultimately breaking the architect's resolve. "It became extremely clear how much they wanted me to do the project," says Piano, "and I realized it was snobby to say, 'I can't work with this place, it's already ruined.' "

His subsequent visit to the site helped clinch the deal. There, outcroppings of limestone and a broad, gently sloping plateau suggested an enduring material, as well as the form of a *sagrato*, or churchfront piazza. At that point, more than a decade ago, the 35-million-euro project began.

The challenges soon ranged from obtaining approvals for complex structures in a seismic zone to questions about the very nature of modern pilgrimages—a seeming oxymoron. At religious sites, continuity with the past is often both consciously and inadvertently preserved. While venerable historic buildings still dominate most major Christian pilgrimage destinations—including Lourdes, Bethlehem, and Santiago de Compostela—the dense entrepreneurial underbrush (or near Disneyfication) of sacred places actually harks back to the time of Chaucer's wayfarers.

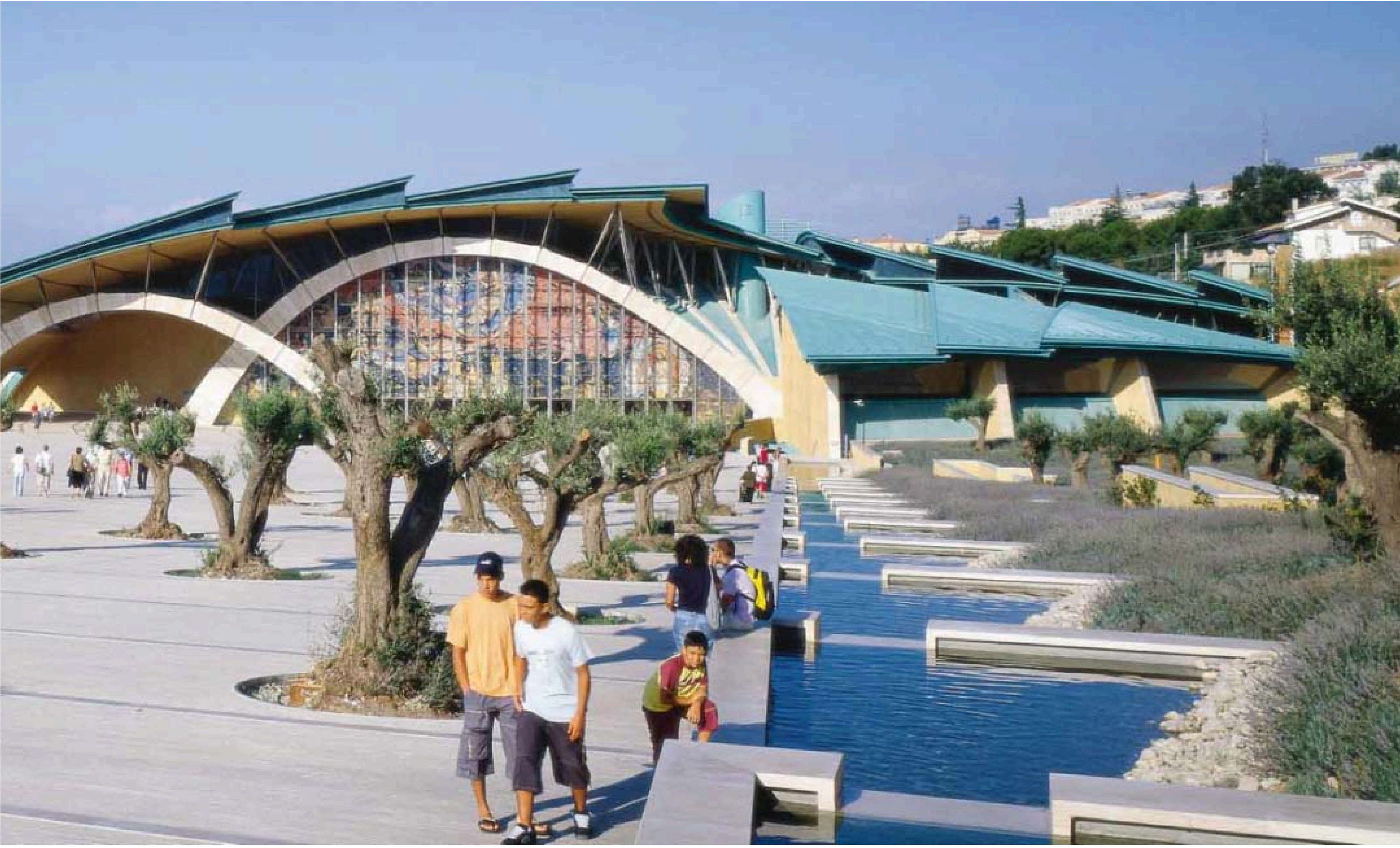
By pilgrimage standards, however, San Giovanni Rotondo's religious significance draws on a remarkably recent past. Though the town, like many in Italy, includes centuries-old churches, Padre Pio's last parish, Santa Maria delle Grazie, just up the slope from Piano's site, dates largely from 1959. And memories of Padre Pio remain vivid in the minds of locals and clergy who knew him personally.

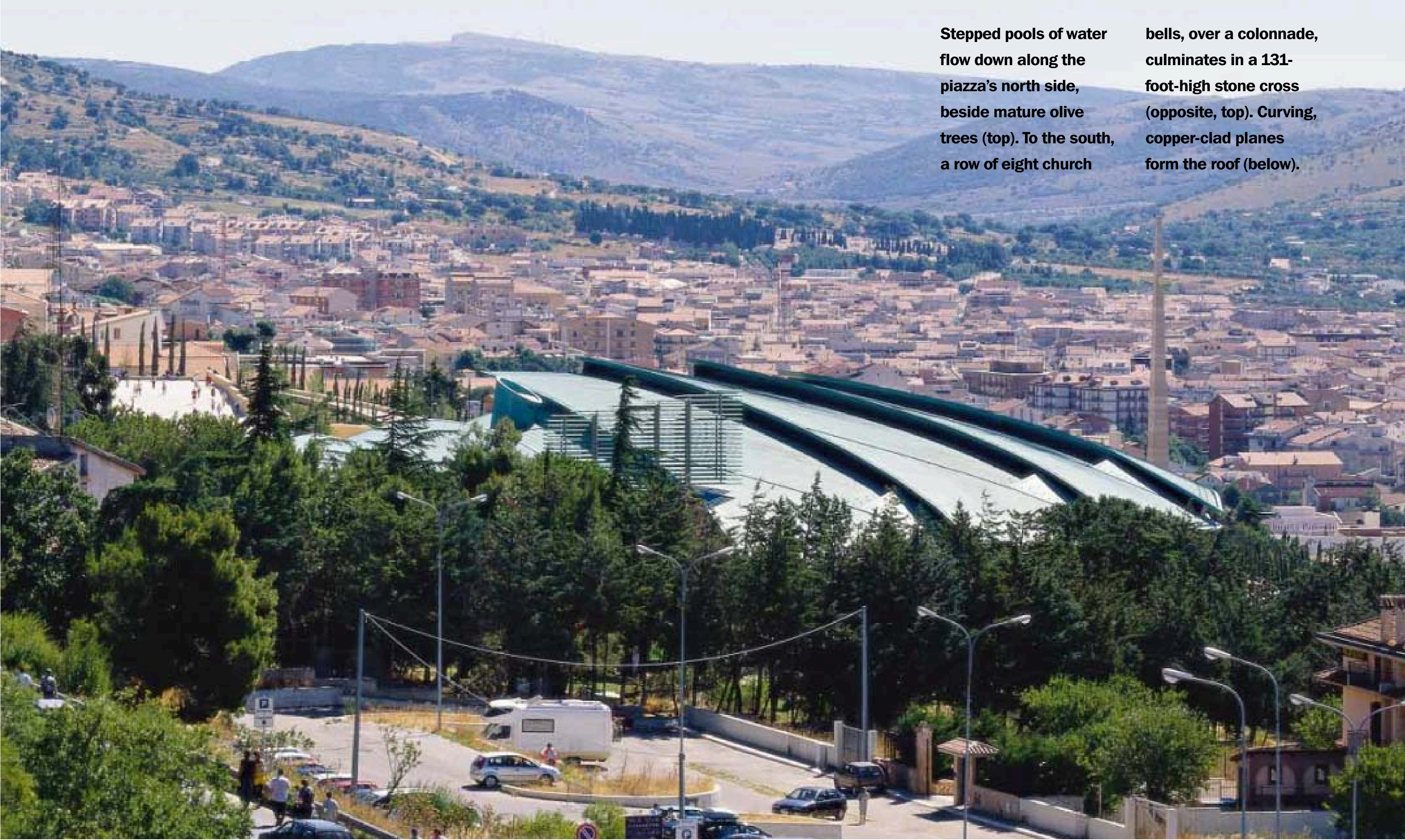
Devotees believe that this man, born Francesco Forgione into a farming family, bore Christ's bleeding stigmata for 50 years. Founder of "The Home for the Relief of Suffering," the town's hospital, Padre Pio is credited with such mystical gifts as predicting the future and healing the sick. Though he lived modestly, ate little, and heard some 60 confessions a day, the Vatican considered the friar controversial, repeatedly investigating him, once banning his public celebration of Mass, but ultimately exonerating him. The Pope canonized him in 2002, but the saint's worldwide following—estimated by some at 15 million—had been growing for decades.

To handle the anticipated deluge of devotees, Piano needed to create the area's single largest sacred structure—at 159,306 square feet—

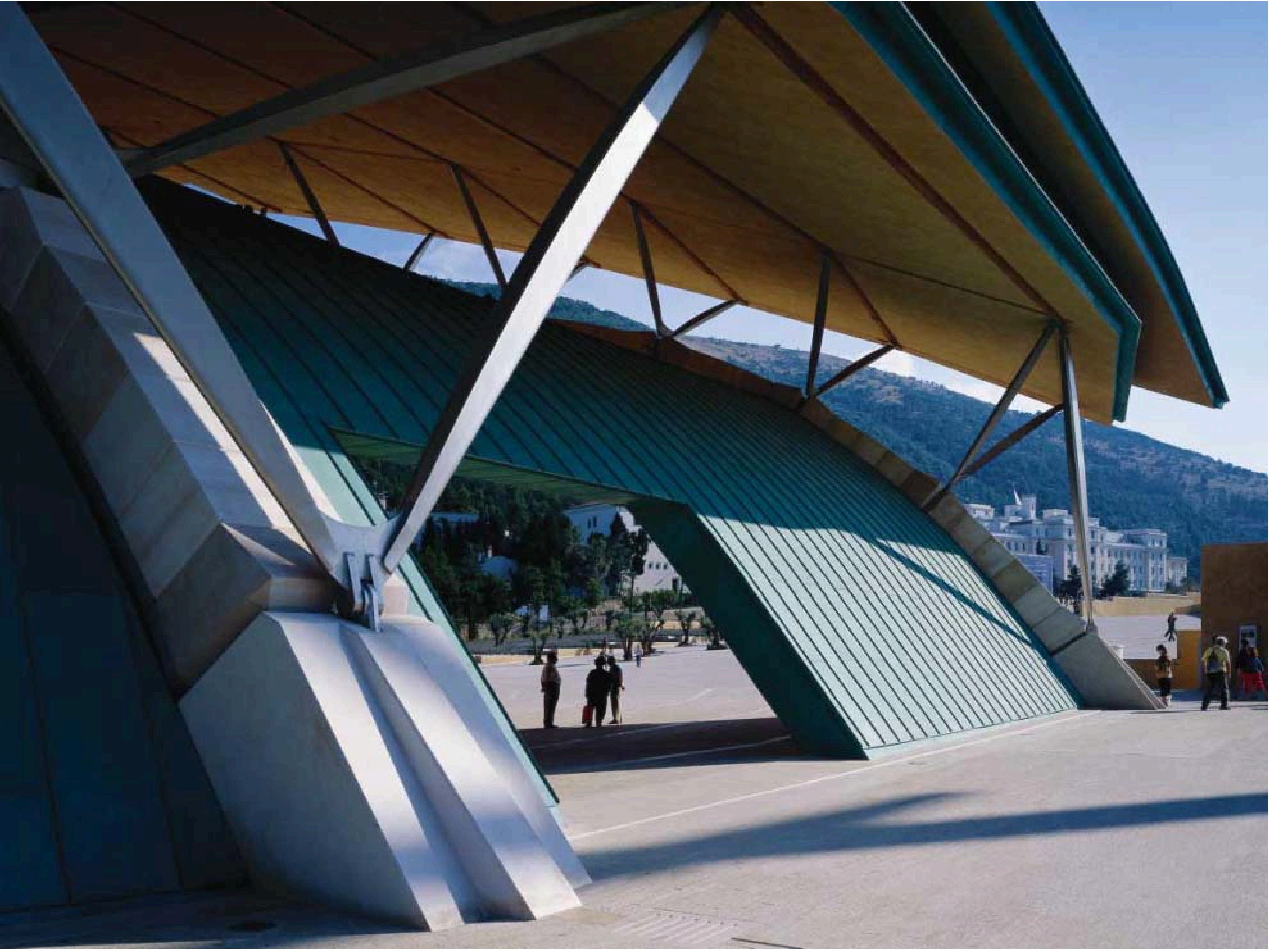
Project: *Church of Padre Pio of Pietrelcina, San Giovanni Rotondo, Italy*

Architect: *Renzo Piano Building Workshop—Renzo Piano, principal; Giorgio Grandi, senior partner in charge*





Stepped pools of water flow down along the piazza's north side, beside mature olive trees (top). To the south, a row of eight church bells, over a colonnade, culminates in a 131-foot-high stone cross (opposite, top). Curving, copper-clad planes form the roof (below).



accommodating 8,000 people (with some 1,500 standing) indoors, plus 30,000 visitors outdoors in its piazza. With a site unburdened by its own ancient history or dominant architectural precedent, the architect was relatively free to rethink the experience and needs of current-day pilgrims.

Piano decided early on to give the main sanctuary a semicircular plan, breaking with the traditional nave, apse, and side-aisle configuration. Embodying a modern and more democratic approach, the rounded form places everyone closer to a central altar, improving sight lines and diminishing the expression of hierarchy. To divide this sanctuary into intimate sectors while retaining a sense of its 64,583-square-foot whole, the architect devised a structural system of stone arches, just one voussoir deep, radiating from a massive column behind the pulpit. The 22 arches—made of hefty, computer-carved blocks of creamy local limestone—create fanlike zones and, says Piano, a seismically desirable structure. (Relying on the precision of advanced fabrication technologies, the building's central resolution of forces and its arches' ability to flex help respond to an earthquake.)

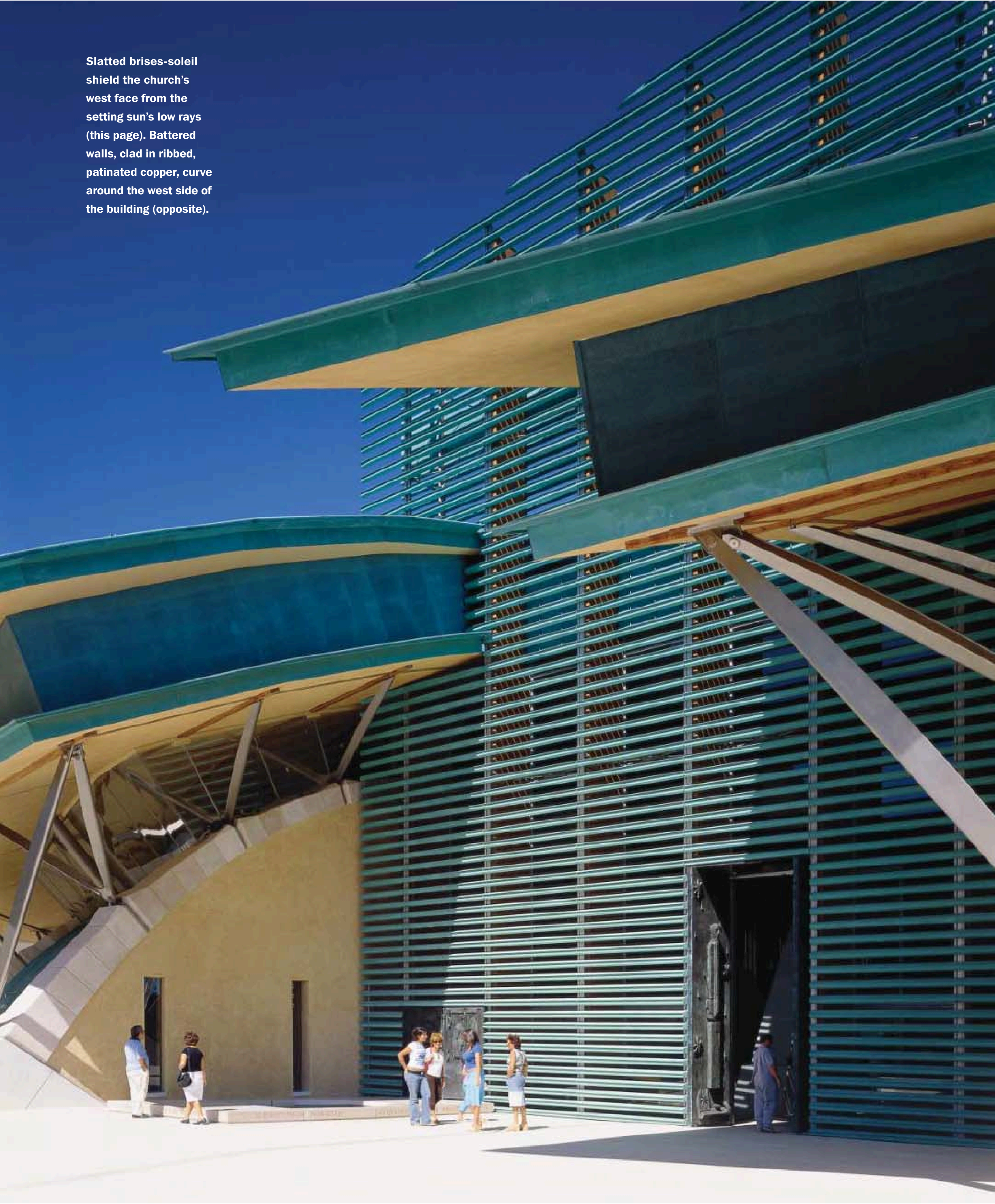
Steel struts rising from the arcs support the laminated wood roof, with its stuccoed underside and its green, segmented outer shell of preoxidized copper. Though the V-shaped struts separate and articulate structural components, allowing clerestory illumination of the curved ceiling above the arches, the multiplicity of thin members, set at varying heights, complicates, even clutters, the visual experience. At the same time, the heavier interior members, the arcs themselves, have a muscular presence, reminiscent of Viollet-le-Duc's forms flexing their structural biceps.

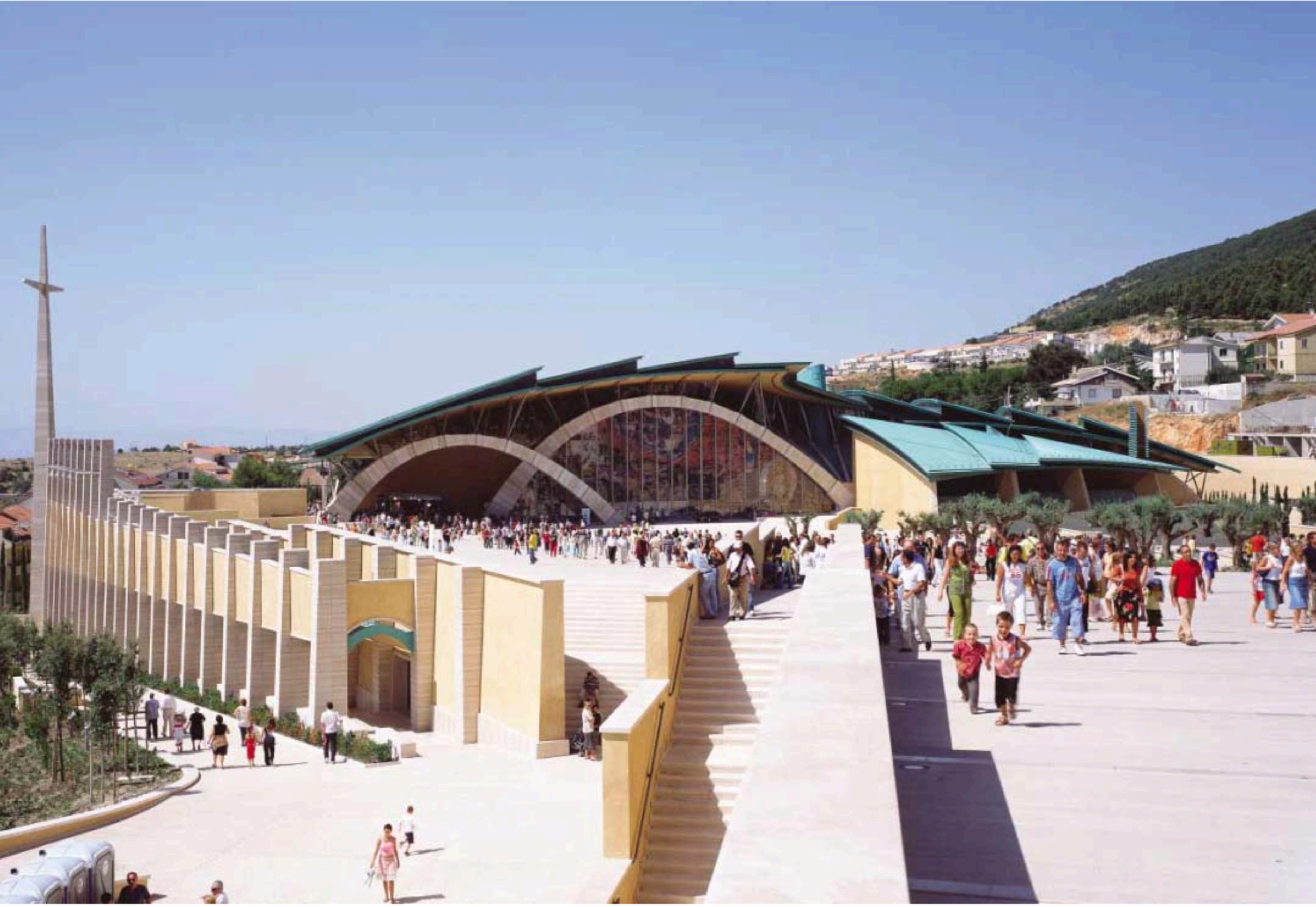
Forming a bold motif, two of these members intersect on the entry facade, with one of them—arguably the world's largest arch—spanning164 feet and rising 52. The barrel-arc facade, unfortunately, has become a tricky act to pull off in a world where such elevations were all too often appropriated by 1950s and 1960s supermarkets, while twin golden arches have taken on, well, other connotations. Here, the authenticity of materials and integrity of structure help transcend such associations, but the larger gesture becomes slightly overloaded with the combination of smaller exterior moves, including scalelike, patinated roof plates, raised on struts, and to the west, tall, slatted brises-soleil.

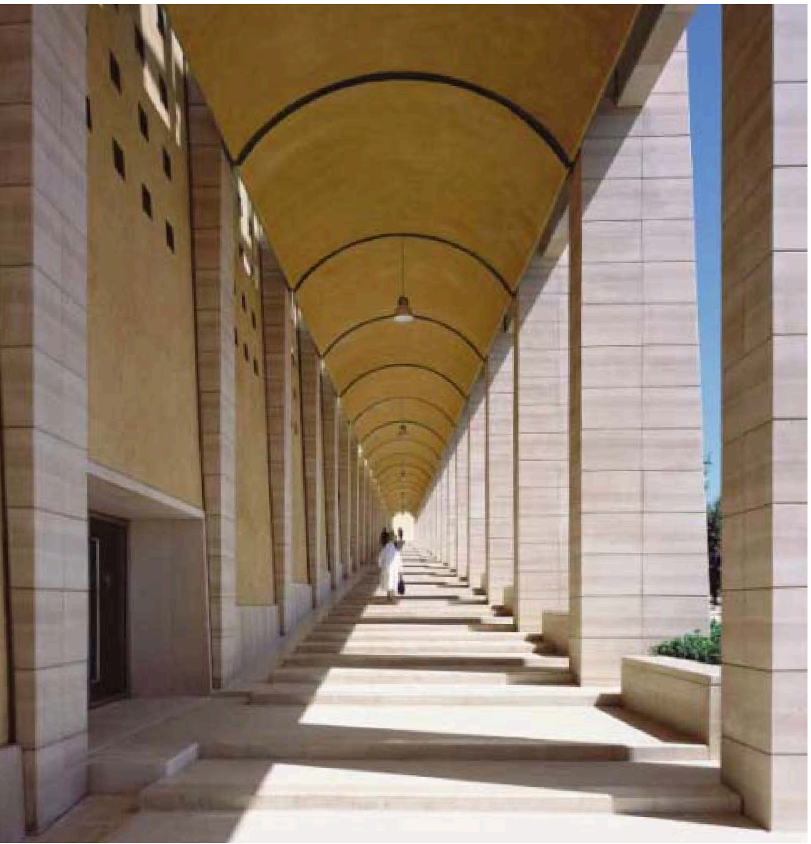
But perhaps the real triumph of Piano's design lies less in his building than in his understanding of how the modern pilgrim moves across the landscape and through a sanctuary. The architect speaks of "walking the site over and over" at the outset of every project, and he clearly roamed this land with passion. Following the hill's contours, his gently sloped piazza—descending from Santa Maria delle Grazie to the arcing entrance of the new church—has a shepherding or embracing quality. Like the keyhole shape of Bernini's St. Peter's Square, in the Vatican, it draws in great flocks of people.

On the facade of Piano's church, an open archway ushers in congregants, while the larger arc intersecting it contains a modern equivalent of a stained-glass window: an image of the Apocalypse actually composed of a grid of semitranslucent, roll-up shades. This artwork—an

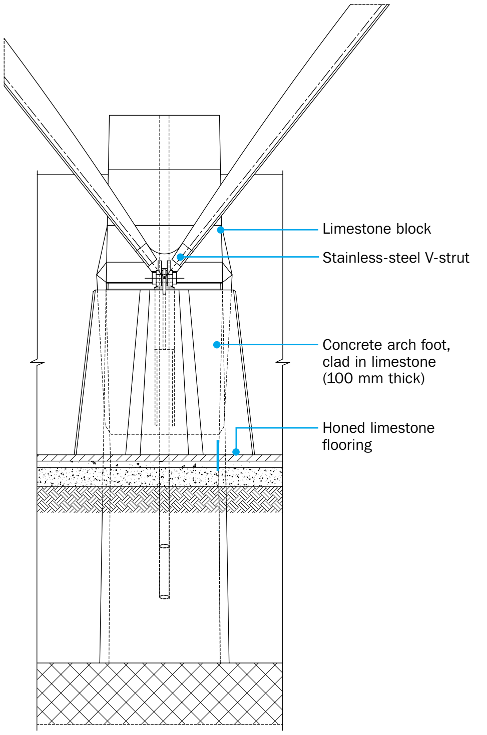
Slatted brises-soleil shield the church's west face from the setting sun's low rays (this page). Battered walls, clad in ribbed, patinated copper, curve around the west side of the building (opposite).





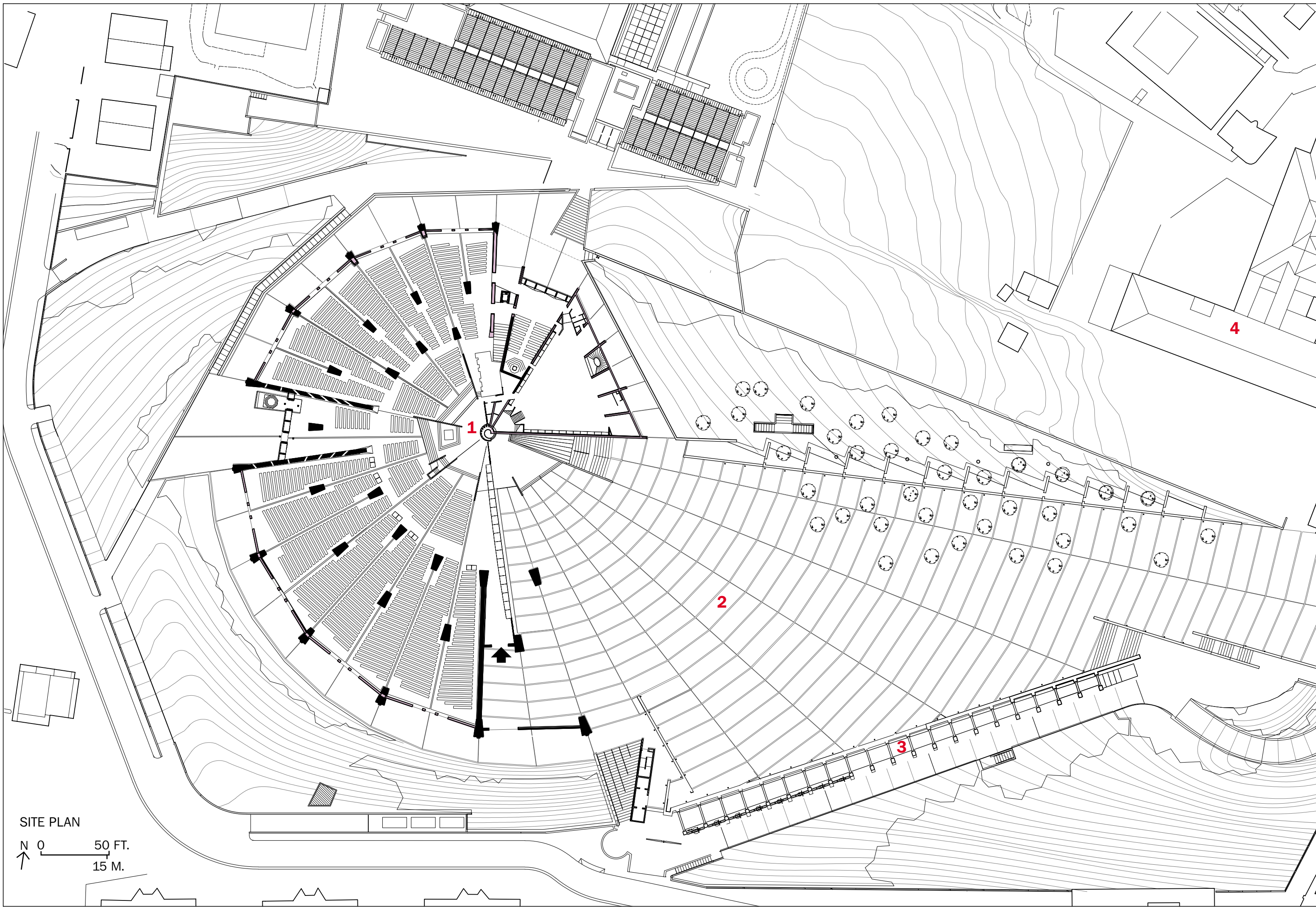


A vaulted colonnade, converging toward a forced perspective (left), rises along the hillside on the south edge of the piazza. A row of eight church bells, leading to a huge cross, crowns this contemplative promenade (above far left). The piazza's parapet masks out undesirable views.


Limestone block
Stainless-steel V-strut
Concrete arch foot, clad in limestone (100 mm thick)
Honed limestone flooring

INTERIOR SECTION DETAIL: THROUGH ROOF SUPPORT

PHOTOGRAPHY: © MICHEL DENANCÉ (THIS PAGE)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4
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SITE PLAN
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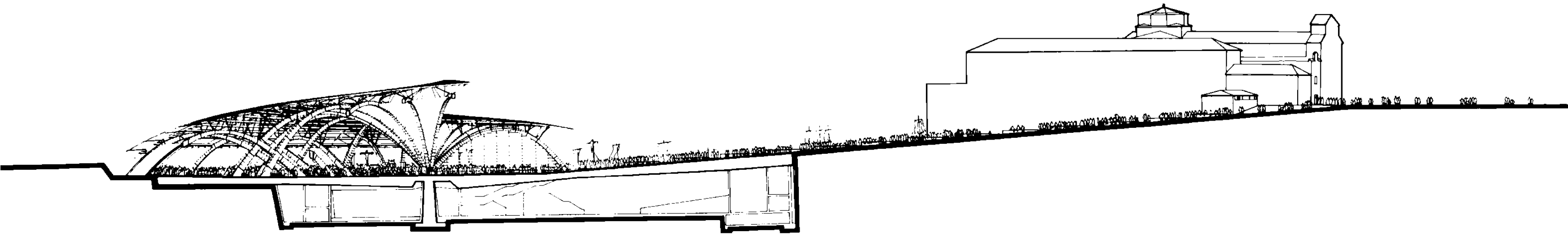
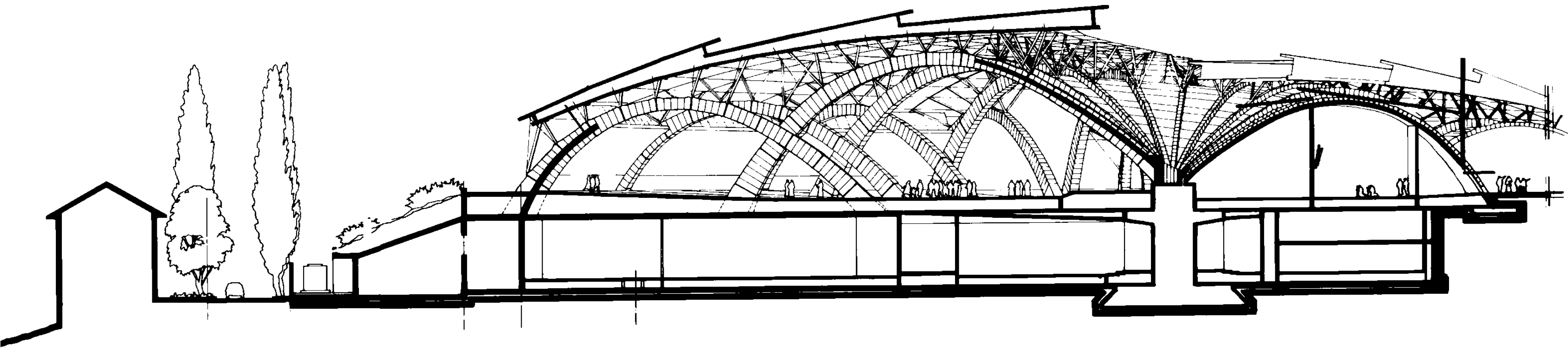
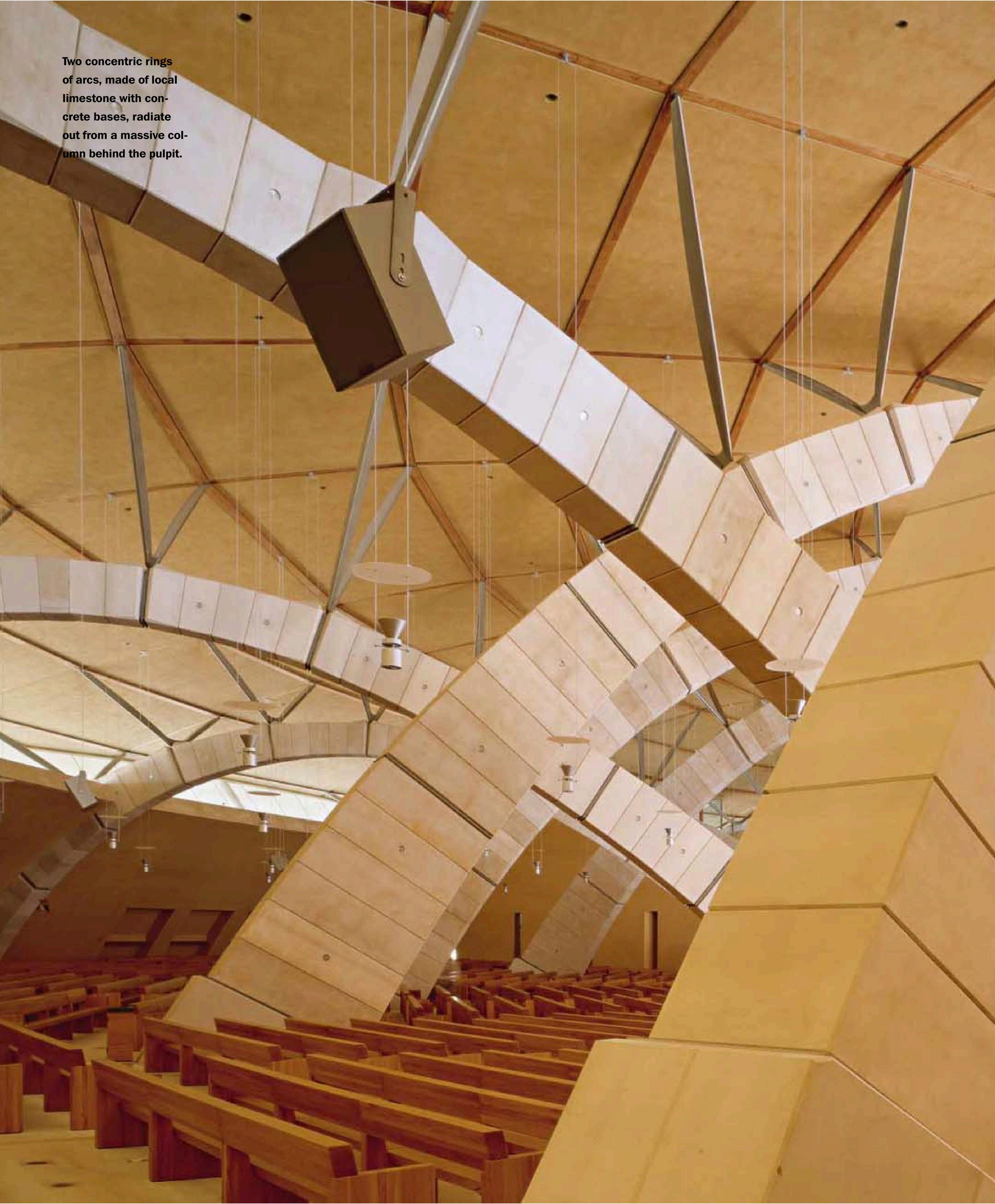
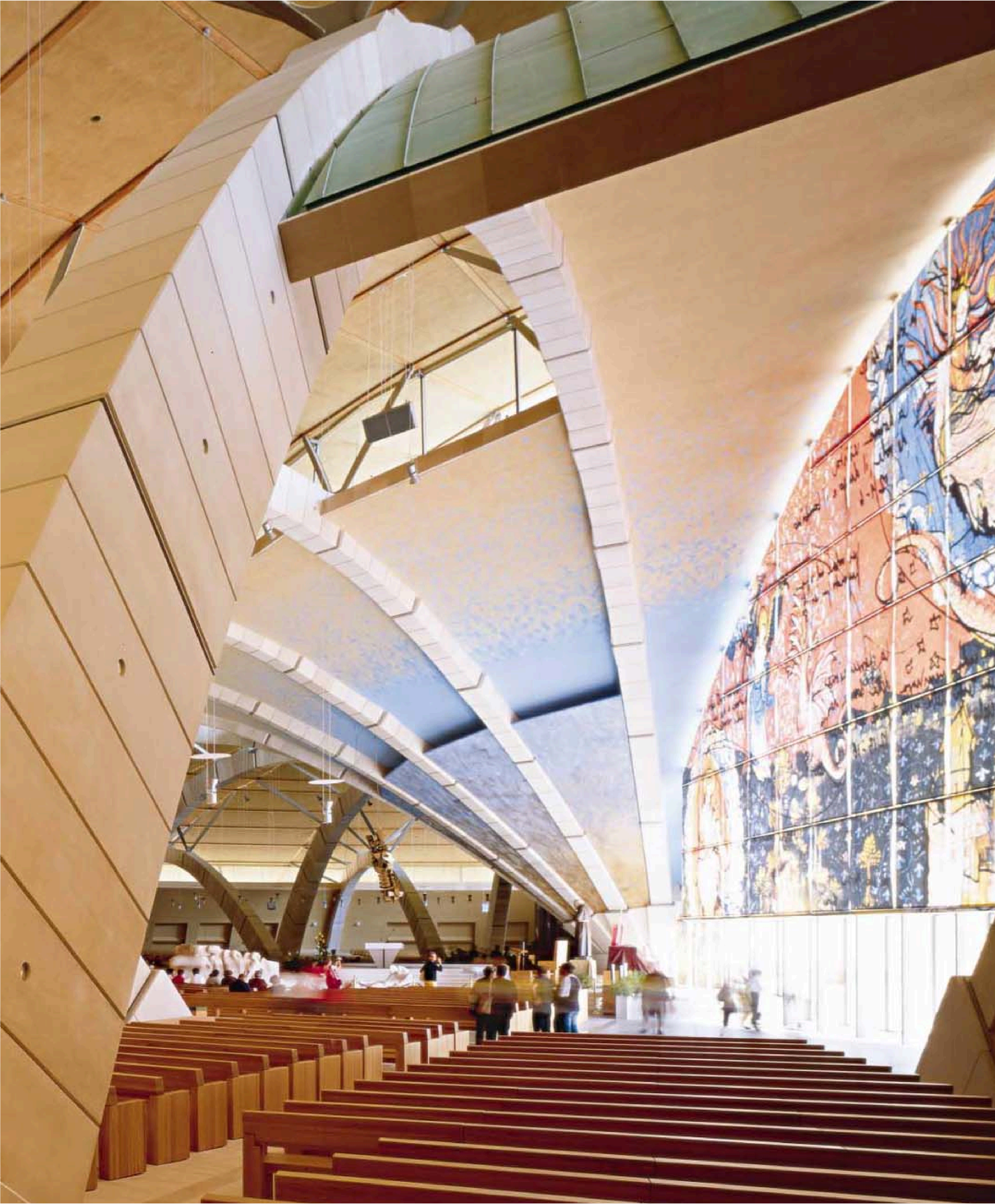
1. *Main sanctuary of new church*
2. *Piazza (sagrato)*
3. *Colonnade*
4. *Santa Marie delle Grazie*

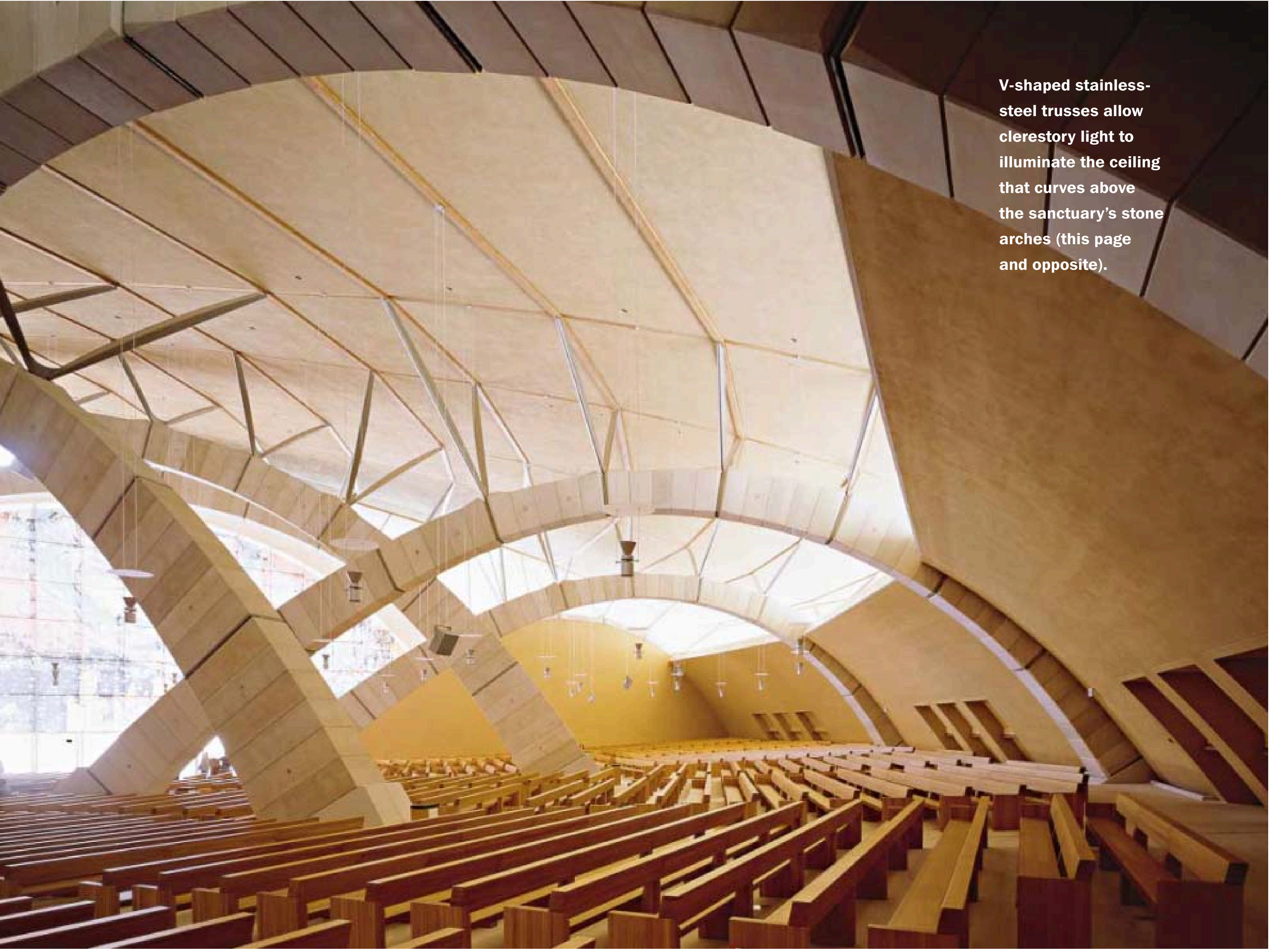






Two concentric rings of arcs, made of local limestone with concrete bases, radiate out from a massive column behind the pulpit.





V-shaped stainless-steel trusses allow clerestory light to illuminate the ceiling that curves above the sanctuary's stone arches (this page and opposite).

enlarged and highly pixilated reproduction of a 12th-century manuscript—is merely a stand-in for Robert Rauschenberg's own Apocalypse on shades, which was created for this venue but awaits Vatican approval.

With some of the blinds raised, the great window reveals its transparent glass, merging the gatherings in the sanctuary and the piazza. At night, with only the lower bands of glazing exposed and the words from the pulpit amplified to the outdoors, the effect becomes particularly powerful.

The building form contributes to the daily religious processions within and around it. Behind the pews, radiating out from the altar, rear doors of ribbed, patinated copper pivot overhead, allowing all 8,000 people to flow out as Mass ends. Following the clergy, who raise the likeness of a holy figure above the multitude, the congregation chants the litany, encircling the sanctuary before entering the plaza. Then, with remarkable ease, the vast crowd filters back inside, completing the ceremony.

The sense of ritual and procession reaches beyond the immediate vicinity of the church to the journey approaching it. The Italian word for pilgrim, *pellegrino*, akin to our French-derived *peregrine*, refers to the act of wandering. But modern pilgrims tend to arrive here in banal conveyances—buses or cars—which must remain in parking lots at the base of the hill. Accepting yet transforming this practicality, Piano's scheme offers a contemplative route from parking to sanctuary: a long allée of some 2,000 cypresses, still to be planted, with the path ascending through a colonnade. Enriching a potentially mundane walk with places to pause and reflect or relax, the architect helps restore the meaningful notion of the wandering pilgrim.

Piano also subtly raised the parapets along the approach and around the piazza, leaving only the foreground and distant landscape visible. The middleground, with its tacky trinket shops and garish signs, effectively drops from view, removing the ordinary from the sacred.

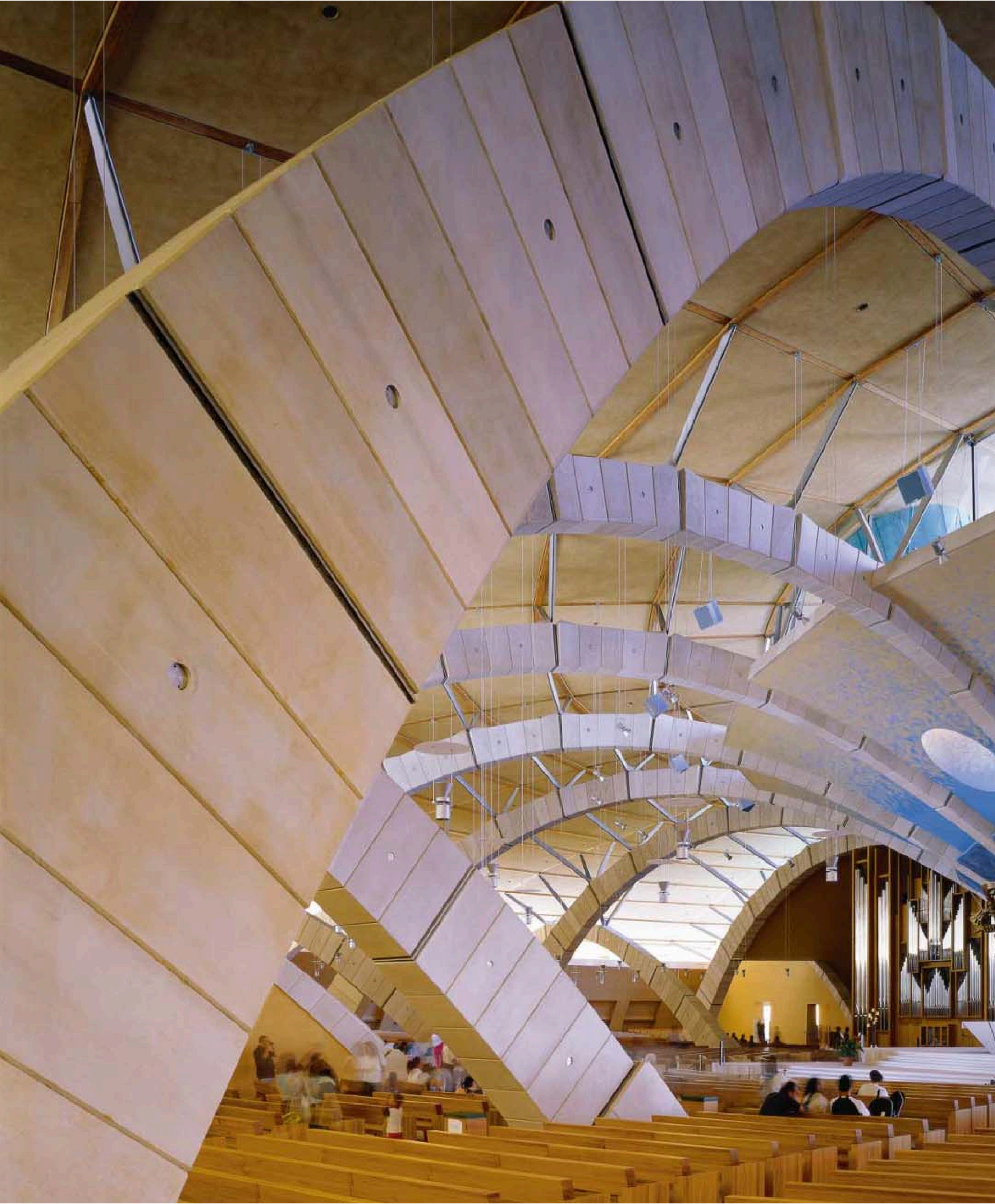
During a candlelight ceremony one recent evening, which happened to be 9/11, the spiritual character of this precinct and its siting clearly prevailed. From the piazza, the church appeared in its essence, glowing from within; while from the sanctuary, the extraordinary view back flickered with tens of thousands of lights descending the hill. The ground plane's upward tilt, coupled with the crowd's density, revealed the flames seemingly all at once and in slow motion. With any extraneous or awkward detail vanishing into darkness, indoors and out flowed miraculously together.

When Piano struggled to overcome his aversion to the site's surrounding "profanity," he reasoned, "Maybe only one in 1,000 visitors will be deeply spiritual, but if 7 million people come each year, then there's a real hope of reaching at least 70,000 of them." He may well achieve that. ■

Sources

Furniture: *Genuflex (liturgical); Poltrona Frau (lecture hall seating)*
Copper roofing: *WAL*

For more information on this project, go to Projects at **www.architecturalrecord.com**.



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MULTIFAMILY HOUSING

Urban Pioneers

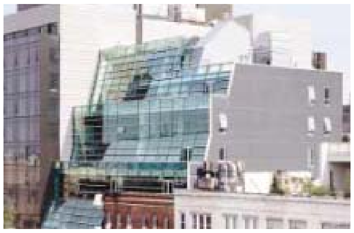
TO MAKE CITY LIVING MORE ATTRACTIVE, ARCHITECTS AND DEVELOPERS ARE REINVENTING THE LOFT FOR PEOPLE MOVING IN FROM THE SUBURBS AND LOOKING FOR STYLE.

By Clifford A. Pearson

For anyone who has shopped housing markets in cities around the country, the term "postwar apartment building" usually conjures images of low ceilings, charmless layouts, and generic architecture. If you can afford it, you immediately skip to the listings for prewar buildings. But wait. Check out the new housing projects in this article and see how a number of developers are finding success by providing alternatives to the cookie-cutter product built by most of their competitors. Innovative design, flowing spaces, and generous ceiling heights are proving to be successful ways of attracting buyers, many of whom are empty-nesters moving out of the suburbs or young professionals with enough money to be choosy about where they live. These people want apartments that express a sense of style and accommodate modern ways of living that require fewer partitions while blurring divisions between living and dining, kitchen and den, home and office.

Although these more daring developers still account for a minority of what is being built, they are operating at a time when the market has been relatively strong. According to McGraw-Hill Construction (a division of the McGraw-Hill Companies that includes ARCHITECTURAL RECORD), multifamily housing starts rose a "vigorous" 10 percent in 2003, to 441,000 units. For-sale units (condos, co-ops, and town houses) led the way, while demand for rental apartments remained sluggish. Low interest rates made buying more affordable and real estate more attractive than other types of investment. Rising interest rates and a "jobless recovery," though, are taking much of the steam out of the market, and McGraw-Hill Construction forecasts a modest 2 percent reduction in multifamily housing starts for 2004, and then an equally modest uptick in 2005.

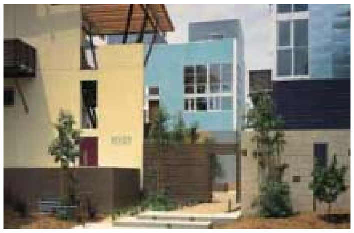
The projects shown in this Building Types Study bespeak quality, not quantity. All offer lofts, which signify sophisticated urban living to many affluent people, and most provide at least a small piece of outdoor space for each living unit. The architects have worked hard to bring daylight and air into all of the apartments, often using courtyards and sometimes boldly glazed skins to do the trick. For all their progressive approach to design, the projects here also find ways to connect to the existing urban fabric around them. Two of the buildings (497 Greenwich Street in New York and Humboldt Lofts in Minneapolis) literally attach themselves to older structures, while another (Lofts at Laurel Court) recalls the courtyard housing popular in West Hollywood in the 1920s. The fourth (138 Barcom Avenue) takes directions from the coveted northern light of Sydney, Australia. Taken as a group, these projects prove that good architecture and multifamily housing are not incompatible. ■



1.

New York City

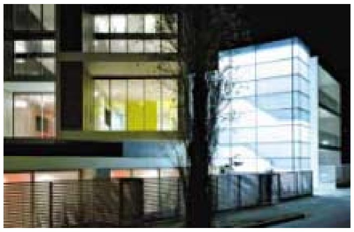
Winka Dubbeldam designed an undulating glass facade for an 11-story building that slides up and around an old brick warehouse.



2.

West Hollywood, California

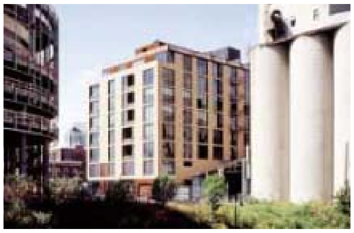
The architects at Public updated the old courtyard apartment model, giving the Lofts at Laurel Court lots of volume inside and open space outside.



3.

Sydney, Australia

At 138 Barcom Avenue, Engelen Moore used its brand of sleek Modernism to help turn around a once-dicey neighborhood.



4.

Minneapolis

With the Guthrie Theater going up next door and old mills all around, Julie Snow's Humboldt Lofts are a hip new address on the Mississippi.

For more information on these projects, go to Projects at **www.architecturalrecord.com**.

PHOTOGRAPHY: © FLOTO + WARNER (1); HEWITT/GARRISON (2); ROSS HONEYSETT (3); DON F. WONG (4)

497 Greenwich Street
New York City

1

WINKA DUBBELDAM SLIPS A CRYSTALLINE BUILDING INTO THE TIGHT URBAN FABRIC OF A LOWER WEST SIDE NEIGHBORHOOD.

By Clifford A. Pearson

Architect: *Archi-tectonics—Winka Dubbeldam, principal in charge; Ana Sotrel, project leader; Michael Hundsnurscher, Nicola Bauman, Amy Farina, Deborah Kully, Stacey Mariash, Ty Tikari, Leo Yung, Beatrice Witzgall, Tanja Bitzer, project team*
Architect of record: *David Hotson Architect*
Client: *Take One—Jonathon Carroll*
Engineers: *Buro Happold (structural); Gabor M. Szakal (mechanical)*
Consultants: *Shen Milsom & Wilke (acoustical); Israel Berger (curtain wall)*
General contractor: *York Hunter*

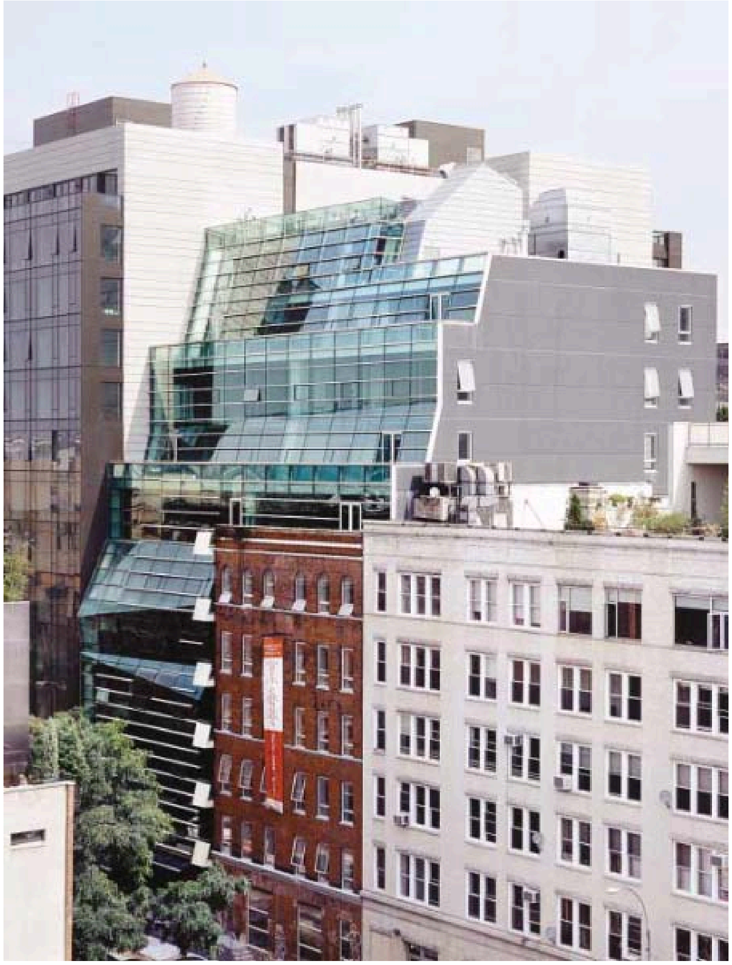
Size: *23 lofts plus retail on ground floor, 77,000 square feet*
Cost: *Withheld*
Completion date: *October 2004*

Sources
Structural steel: *Canatal Industries*
Steel erectors: *Millennium Steel*
Concrete masonry: *Anchor Concrete*
Curtain wall: *UAD Group*
Curved glass: *Cricursa*
EIFS: *Dryvit Systems*
Wood/aluminum windows: *H-Windows*
Glazing: *Floral Glass*
Glass-curtain-wall doors: *Kawneer*
Kitchen cabinets and island: *Ricicla system by Valucine*
Kitchen contractor: *New Industries*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Fold paper and you give it extra strength and, in the right hands, added beauty. Fold glass and you get an "inhabitable facade," says Winka Dubbeldam of the 11-story loft building that her firm, Archi-tectonics, completed in October. Using bent glass and a fluid approach to geometry, Dubbeldam created a curtain wall with depth, a street front that envelopes space as much as it separates inside from out.

Set on the western edge of SoHo, which had retained a gritty industrial demeanor until recently, the building at 497 Greenwich Street injects a rousing dose of 21st-century Modernism while engaging the past. The new structure rises alongside and then extends over its six-story, 19th-century neighbor to the south, drawing the older brick building into an architectural tango. On the inside, the two buildings work as one, with all floors aligned and a common service core.

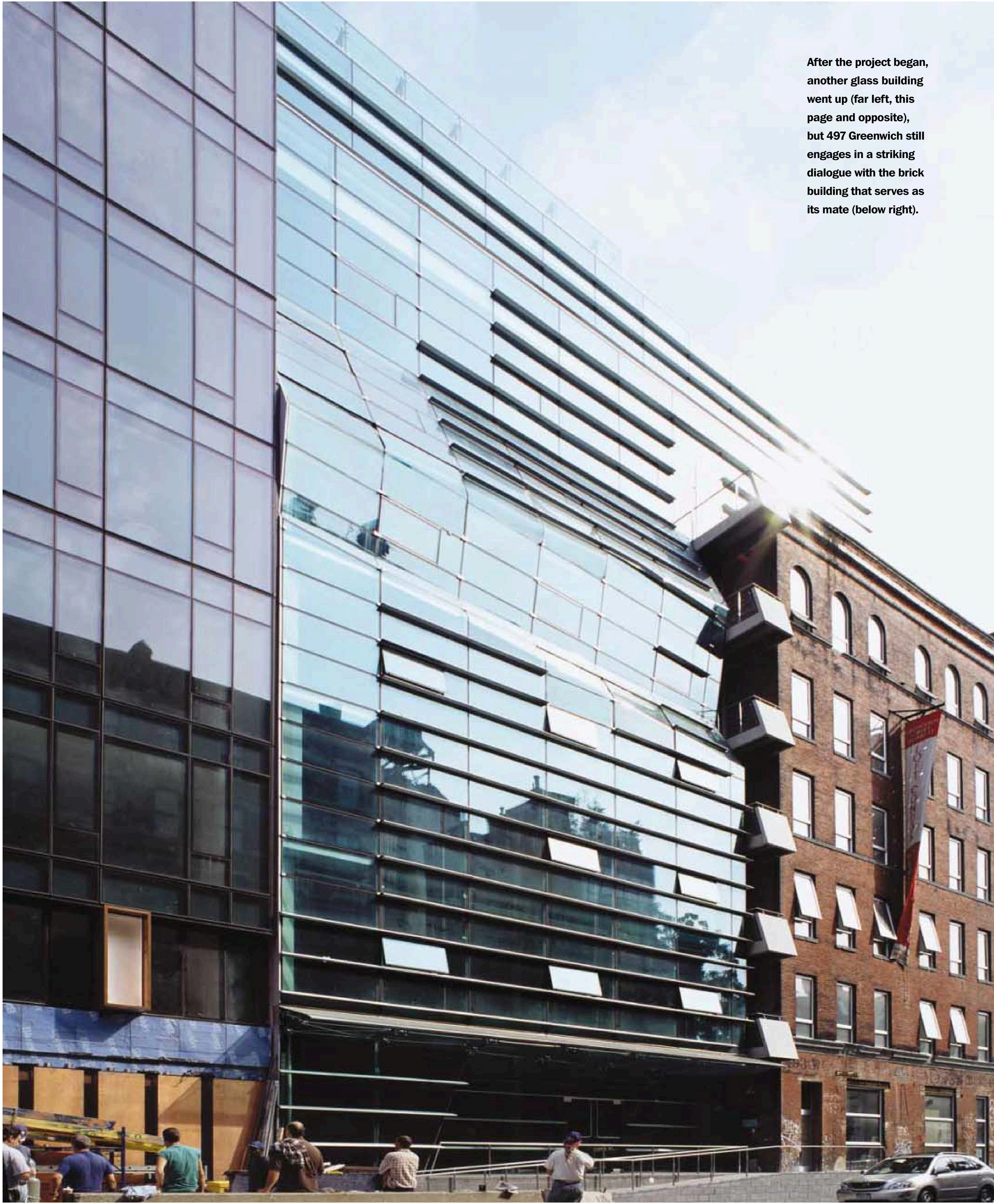


PHOTOGRAPHY: © FLOTO + WARNER

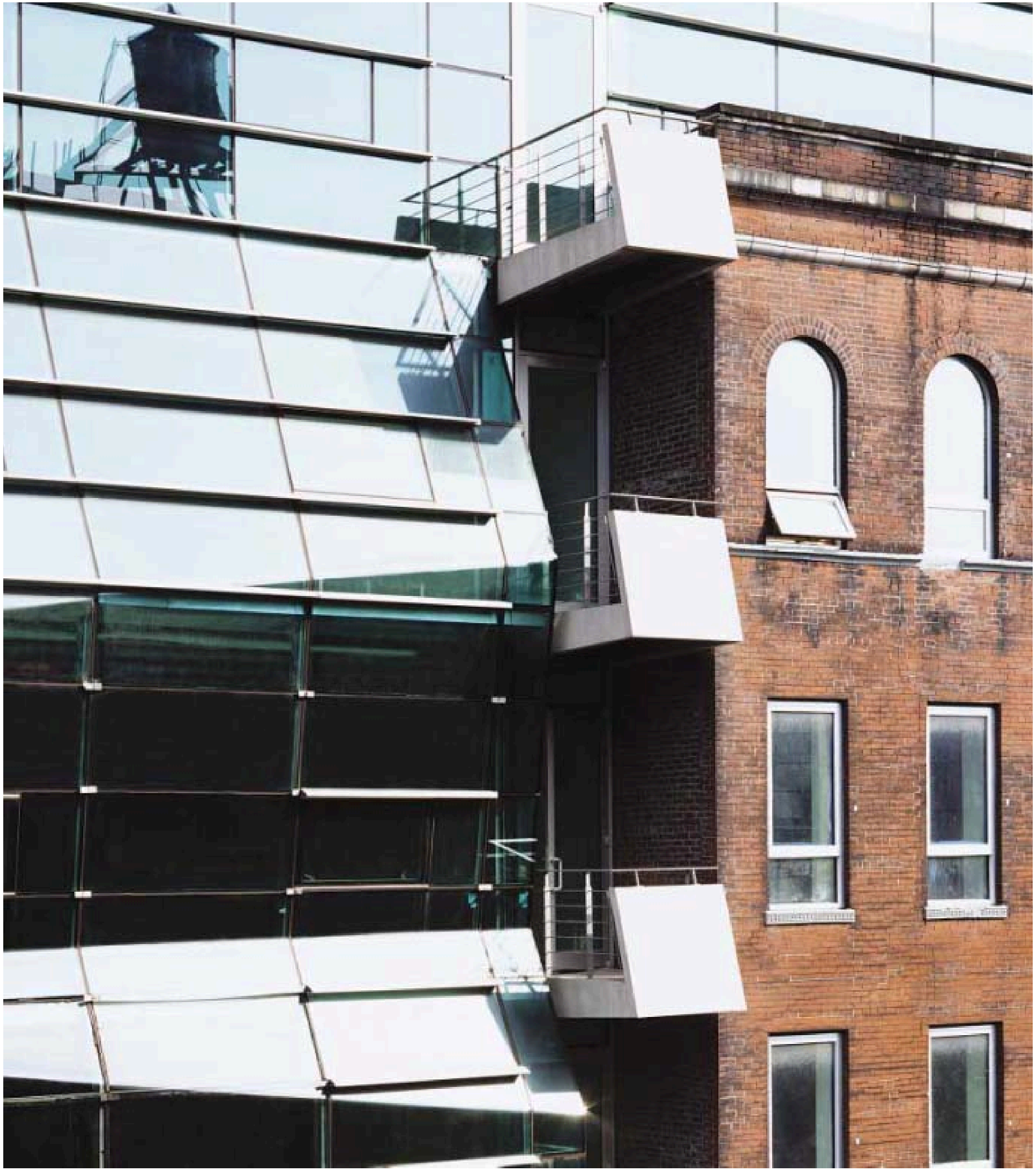
Program

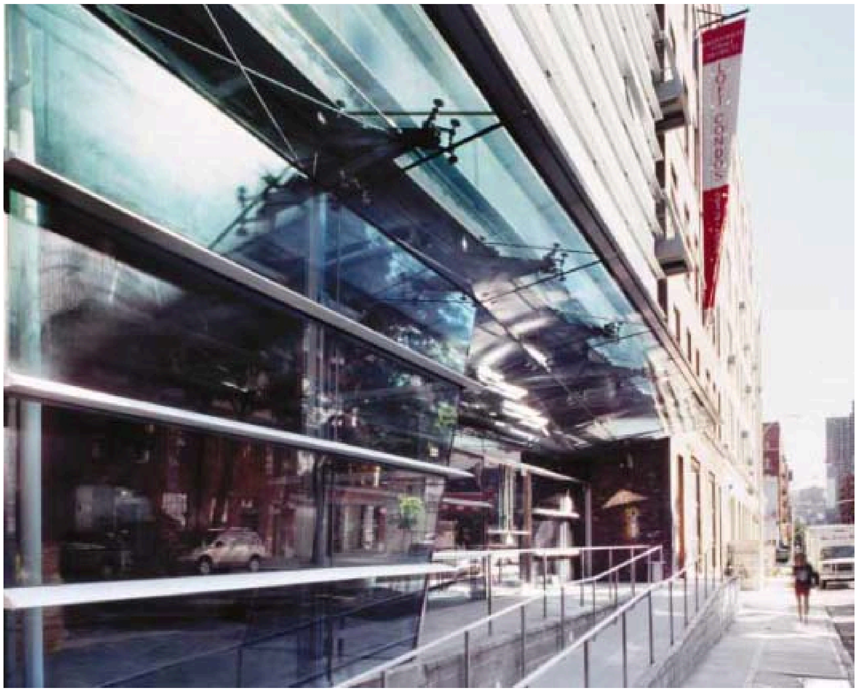
While New York City developers have been riding a booming residential market over the past several years, almost all of the apartment towers they've built have been numbingly formulaic in terms of floor plans and exterior design. Jonathon Carroll, a London banker who had hired Dubbeldam to design a New York apartment for him in the late 1990s, looked at the situation and saw an opportunity to do something different. Wary of a stock market that he correctly saw as overvalued, he decided in 1999 to invest his money in real estate instead. And rather than the cookie-cutter apartment towers rising all over Manhattan, he asked Dubbeldam to design spacious lofts in a building that would generate some architectural excitement.

By inserting a new building on the street and incorporating the empty six-story warehouse next door, the architect could create 23 living units and provide space on the ground floor for an art gallery or stores, as well



After the project began, another glass building went up (far left, this page and opposite), but 497 Greenwich still engages in a striking dialogue with the brick building that serves as its mate (below right).





Small balconies, which will be clad with untreated cedar, serve as a vertical crease between old and new (above). A glass canopy over the entry ramp (right) pulls the building out to the street.

as a small fitness center and meeting room for the residents.

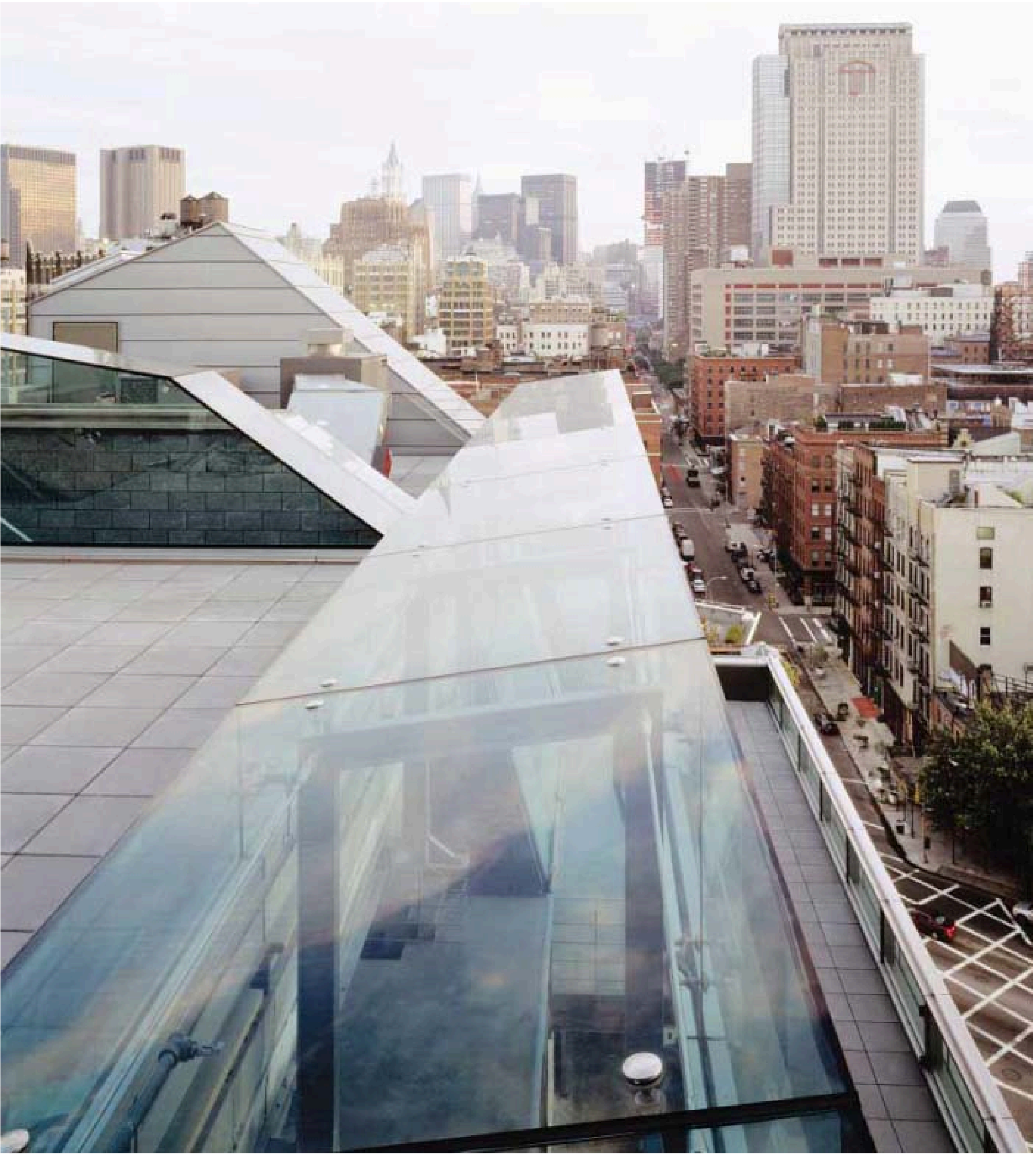
Solution

Wanting to establish a dynamic relationship between old and new, Dubbeldam explored the idea of "slippage" in her design. Instead of presenting a static pairing of eras and structures, she decided to slip one up and past the other. At the same time, she developed the notion of creasing the new glass facade, treating it as the fashion designer Issey Miyake might a pleat in the fabric of a dress. Bending the glass off the vertical plane and angling it off the horizontal, Dubbeldam sculpted a remarkably three-dimensional facade. "I wanted to create a new kind of folded vertical landscape," says the architect, "with the folds of the glass integrating the setbacks required in the city's building code."

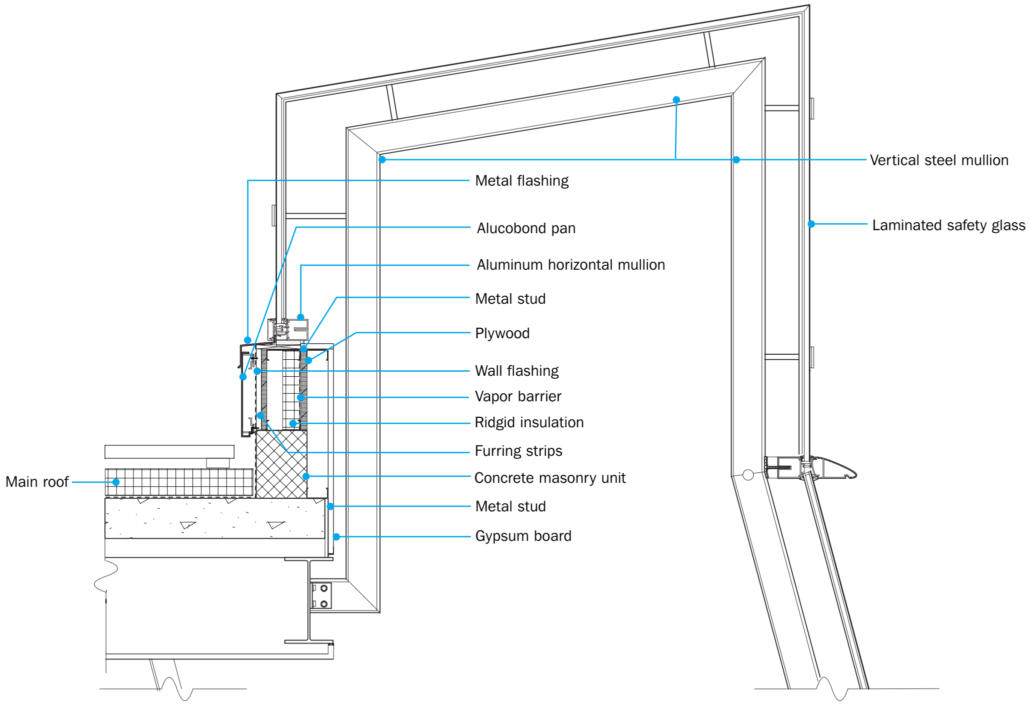
Using structural glazing with a steel frame pulled a few inches behind it, Dubbeldam designed a curtain wall that seems to float independent of its support. To keep the steel columns as thin as possible, she used steel cables to cross-brace the structure. The first seven stories of the glass facade are hung from the the eighth floor, reinforcing the notion of a transparent curtain. As the building steps back away from the street in two-story increments, the curtain wall rises from the floor below, instead of hanging from above.

For the creases in the facade, Dubbeldam worked with the manufacturer in Barcelona who produced the glass for Herzog & de Meuron's Prada Tokyo store [RECORD, October 2003, page 92] to create glass panels that bend in two directions. To manufacture these pieces, the company folded flat sheets of glass over molds by heating different portions of the glass at different temperatures.

Although the curtain wall faces west, laminated glass, UV film, and exterior metal fins reduce the impact of the sun. "Residents can put their Rembrandts and Van Goghs on the wall right behind the glass and not worry," says Dubbeldam. Thick concrete-masonry walls also block out noise and make the building energy



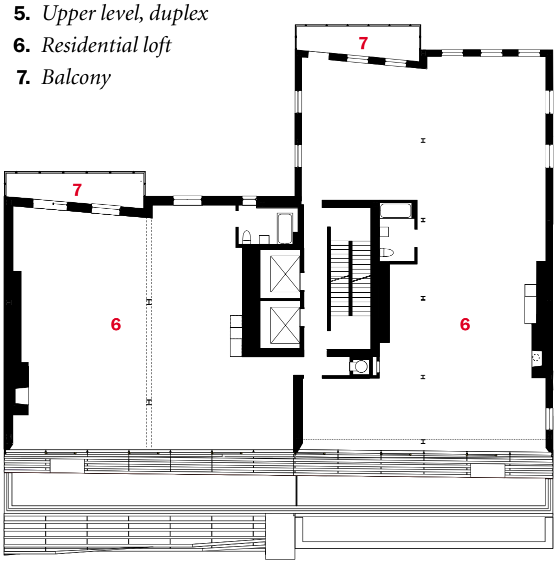
A long glass skylight (left and drawing, bottom) runs along the top of the penthouse, facing the Hudson River. A glass-enclosed stair (below) provides access to a roof terrace and is another expression of an architecture designed to float within the city.


Vertical steel mullion
Metal flashing
Laminated safety glass
Alucobond pan
Aluminum horizontal mullion
Metal stud
Plywood
Wall flashing
Vapor barrier
Ridgid insulation
Furring strips
Main roof
Concrete masonry unit
Metal stud
Gypsum board

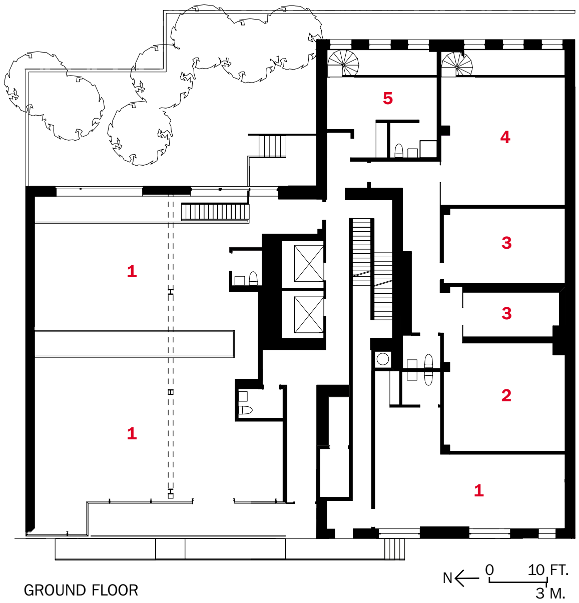
PENTHOUSE SKYLIGHT

Lofts come with bathrooms and all mechanical and plumbing installed, but residents have to finish the units themselves. Dubbeldam bought a 1,900-square-foot loft for herself (right) and installed a kitchen with yellow carbon-fiber cabinets and stainless steel counters (below).

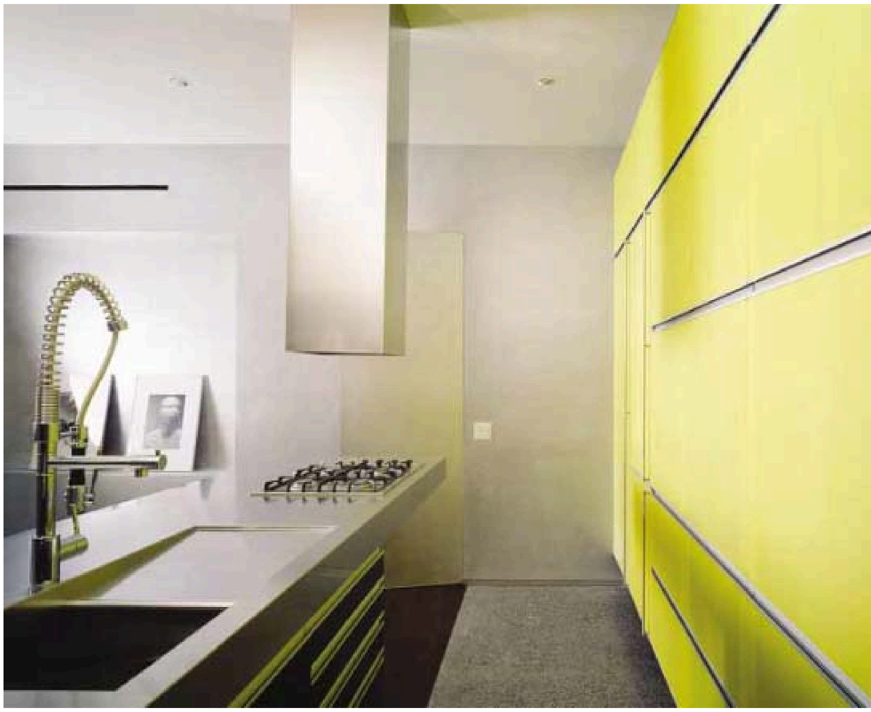
1. *Commercial*
2. *Meeting*
3. *Storage*
4. *Fitness*
5. *Upper level, duplex*
6. *Residential loft*
7. *Balcony*



EIGHTH FLOOR



GROUND FLOOR

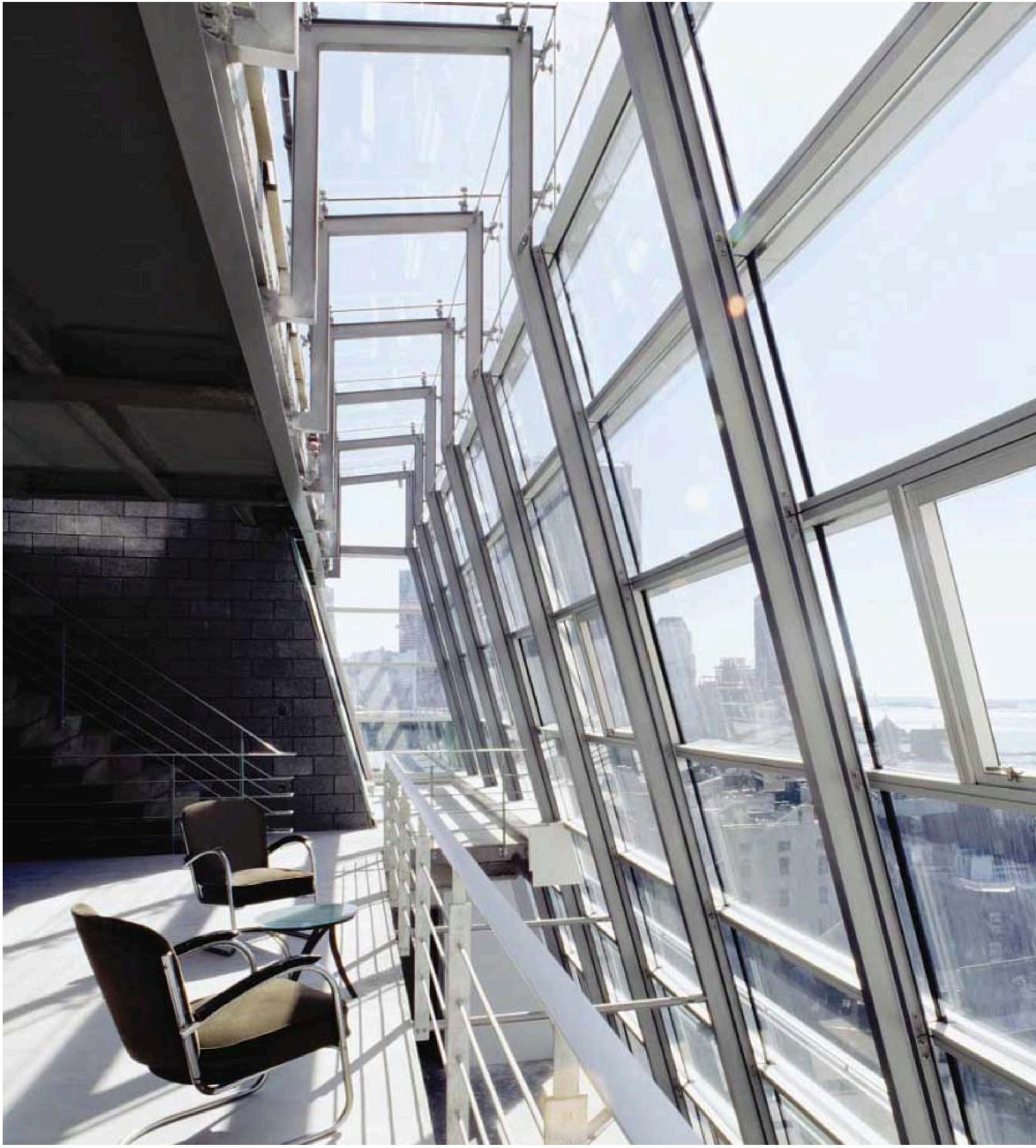


efficient, she adds. Both the curtain wall and the east-facing rear wall have operable windows, and every unit has a cedar-sided balcony.

For the lofts themselves, Dubbeldam kept them as simple as possible, letting the 12-foot-high ceilings and expansive views to the Hudson River do the talking. Each floor of the old building has two 1,900-square-foot units on it, while the new building has one 3,000-square-foot unit per floor. In the portion of the project above the old building, there is either one 5,700-square-foot loft on each floor or two dividing that space. The units sell for about $1,000 per square foot, says the architect, who just moved into one of the 1,900-square-foot units.

Commentary

With 497 Greenwich Street, Dubbeldam has shown she can build on an urban scale and offer an exciting alternative to the copycat housing that has long dominated the New York City market. ■



The developer kept the penthouse (this page) for himself, so he could enjoy the spectacular views. Even the bathroom (below, far right) gets a view of the Hudson and New Jersey. Steel spacers separate the glass wall from its supporting steel braces, adding to its ethereal character (right and below left).

Lofts at Laurel Court
West Hollywood, California

2

PUBLIC'S DESIGN ALLOWS RESIDENTS TO TAKE REFUGE FROM URBAN LIFE IN AMPLE COURTYARDS AND OUTDOOR AMENITIES.

By Ann Jarmusch

Architect: *Public—James Brown AIA, James Gates, partners; Francisco Garcia, project manager; Alfred Wilson, Michael Paluso, Steven Rosenstein, team*
Client: *Palisades Development Group*
Consultants: *Kenneth Brown Design (interiors); Envision Engineering (engineer); Dry Design (landscape); Coury Enterprises (general contractor)*

Size: *46,719 square feet*
Cost: *$4 million*
Completion date: *May 2004*

Sources
Structural system: *Tony B. Concrete (cast-in-place concrete); O'Neil Framing (rough carpentry); CS Construction (finish carpentry); Peterson Brothers Construction (mason); Spec Iron (structural steel)*
Exterior cladding, plaster: *California Plastering*
Exterior cladding, metal: *Shoreline Sheet Metal*
Aluminum windows: *Starline Windows*
Entrance doors: *Texin Doors*
Exterior painting: *Kostas Gioulis Painting*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

West Hollywood is home to the R.M. Schindler House, 1920s bungalow courts, and tree-shaded residences evoking French châteaux, Spanish haciendas, and Tudor manses. Here, an aura of glamour and artistry has survived the onslaught of Sunset Strip–style urbanism and car culture. Unfortunately, bland, low-rise apartment buildings over gaping garages have ravished the charm of this 1.9-acre city, a plague of the character-killing typology that has proliferated here since the 1960s.

Today's urgent need for higher-density housing coincides fortuitously with the aging of these soulless, poorly built buildings. In response, the city encourages new multifamily residences based on the area's historic courtyard housing, originally built in Spanish Revival or Craftsman style. Today's courtyard guidelines include doubling the usual requirement for common outdoor areas. In return, developers are allowed extra living space per unit without an increase in parking requirements, relaxed setbacks, and other concessions.

Judging from several fresh, new courtyard-housing projects, the policy seems to be working. Palisades Development Group of Santa Monica hired Public, a small San Diego architecture firm, to design the 20-unit Lofts at Laurel Court after Palisades' president, Avi Brosh, admired Public's mixed-media, multifamily Dutra Building in San Diego.

PHOTOGRAPHY: © DAVID HEWITT AND ANNE GARRISON

Program
The 20 condominiums fill three buildings arranged around an elongated T-shaped courtyard. Except for one building that faces Laurel Street, residents enter their units from the courtyard. A wooden trellis high overhead signals the principal entrance into the landscaped courtyard of the loft buildings. Just inside a wooden gate, mailboxes, trash chutes, and an elevator are concentrated on a concrete platform elevated several steps above the curved entry path.

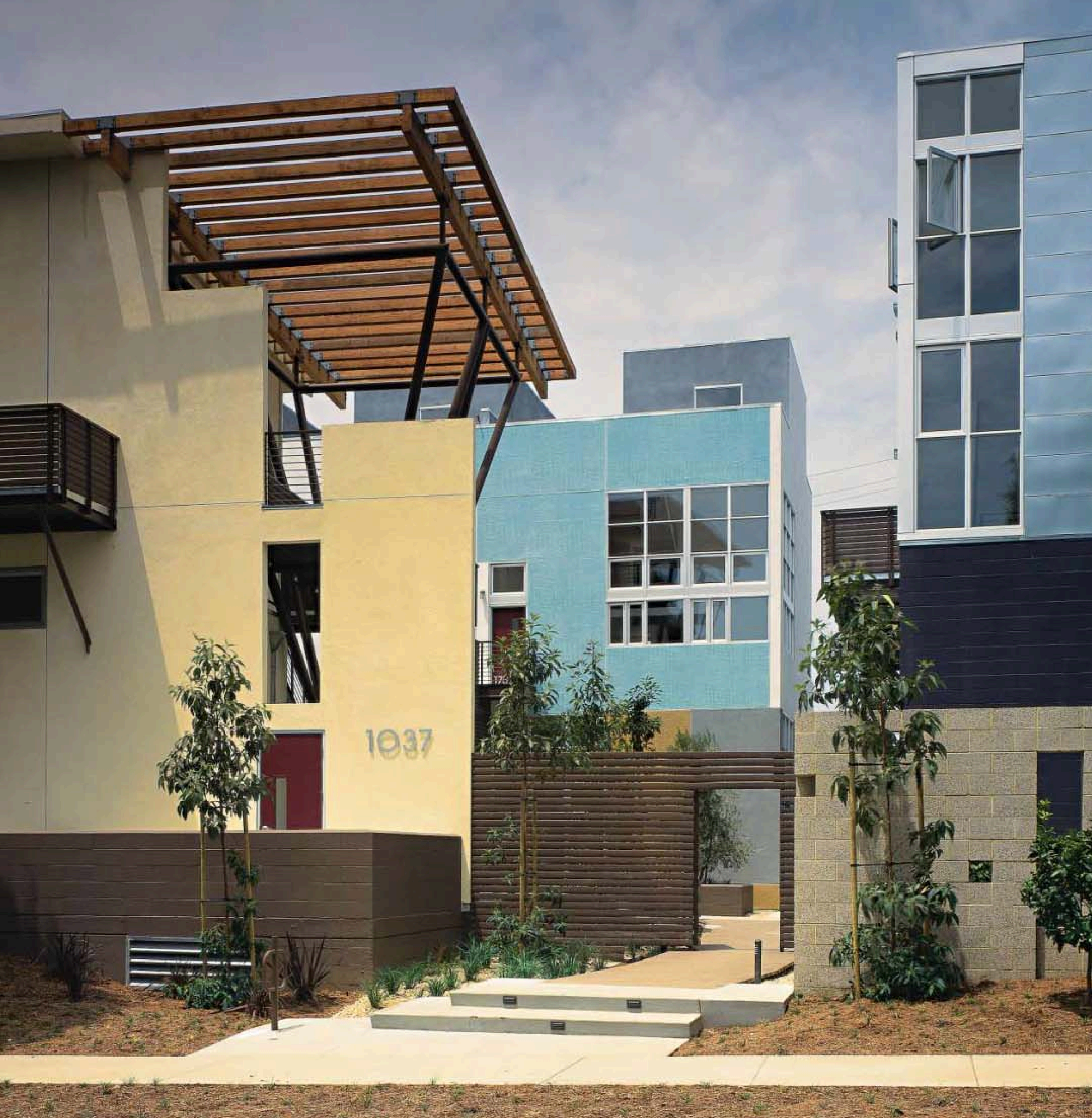
Laurel Court's common open space is about five times greater than the open area required of non-courtyard housing projects, according to Public's James Brown. Varied landscapes—raised beds of succulents, striking olive trees, benches attached to planter boxes—unfold as you move through the site. Even the below-grade garage is part sunken garden at one end: Its bamboo stands are expected eventually to shoot up to screen views of an adjacent apartment building.

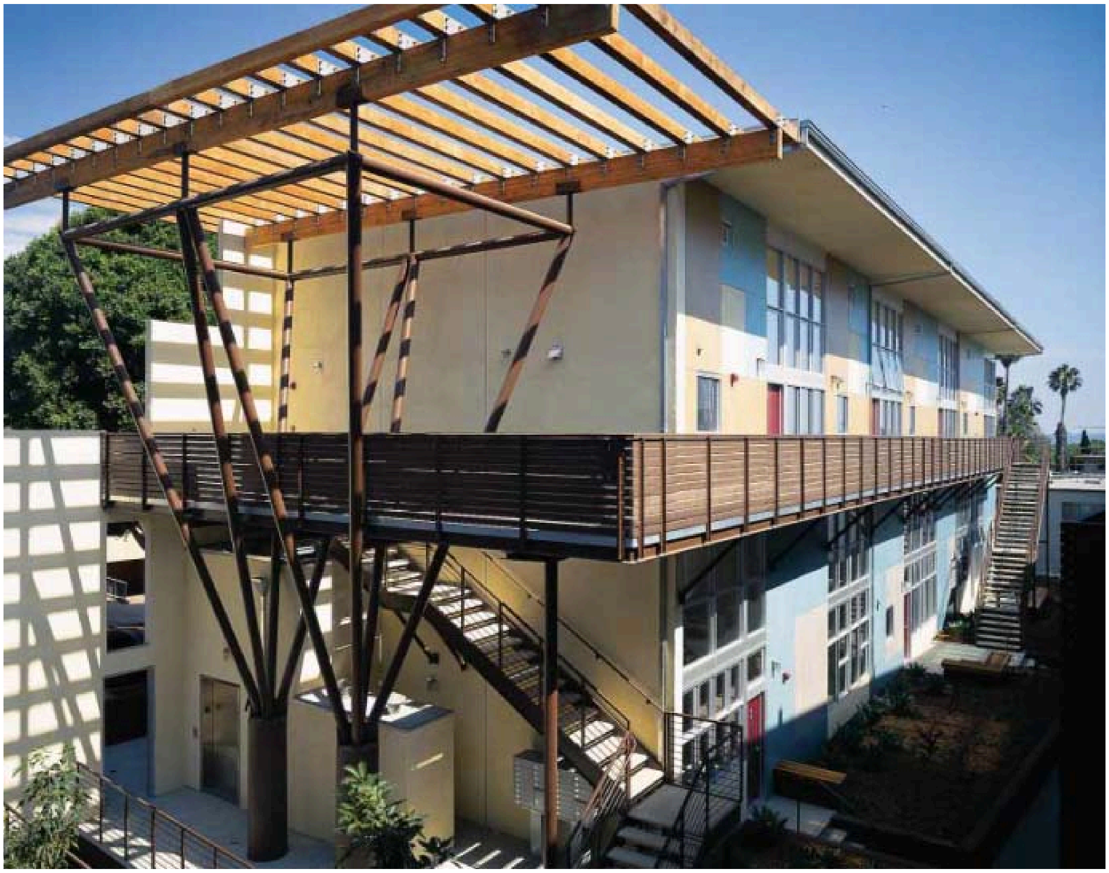
Solution
"Our customer tends to be the high-end, design-conscious urban dweller," Brosh said. "This product really caters to them" in concept and detailing. Inside the two- and three-level units, white, sculptural interiors soar or stop at quirky angles; exposed ducts shimmer. Outside, large, mosaic-tile color blocks enrich expanses of stucco, while tall wood towers, dressed up with climbing vines, enclose open-air stairways.

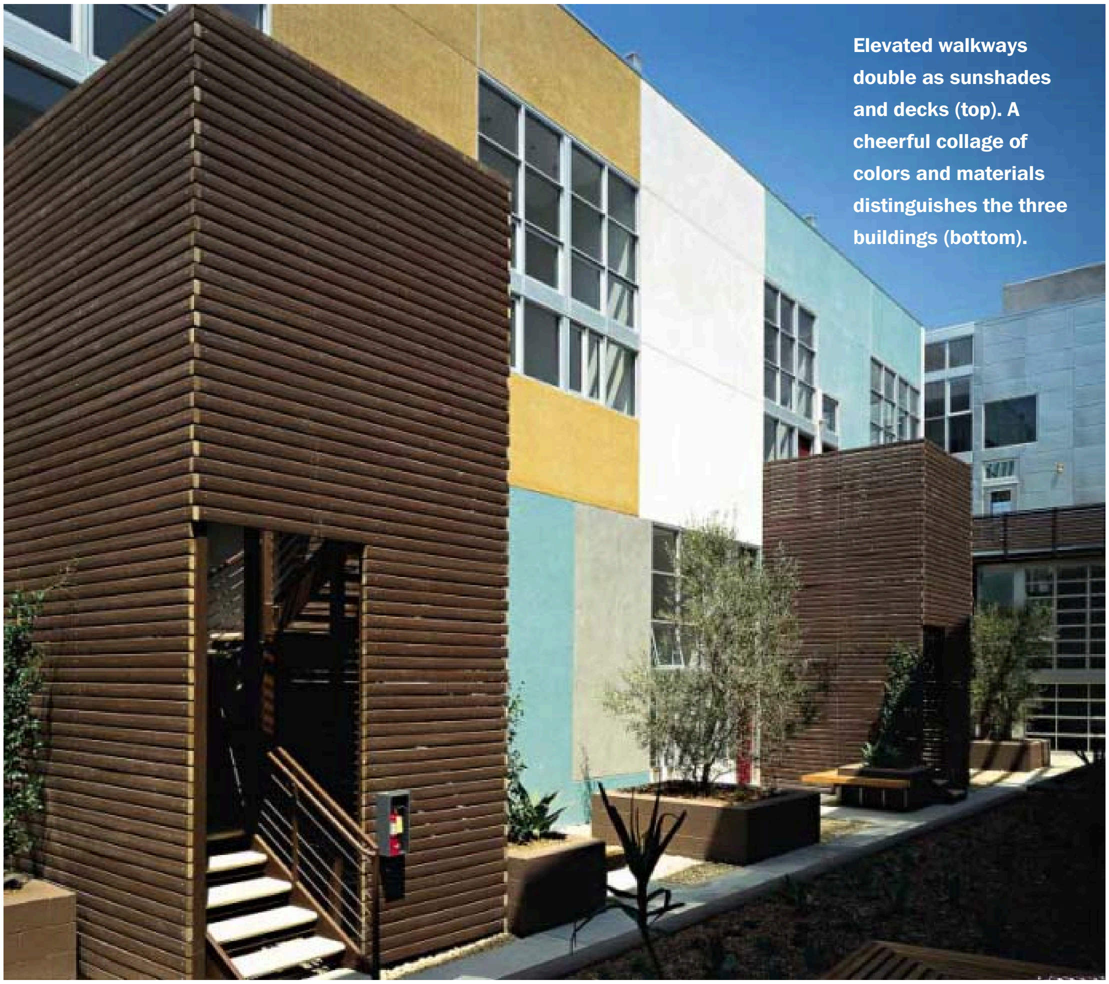
Public delivered the same

Ann Jarmusch is the architecture critic for The San Diego Union-Tribune.

The street-facing building greets the visitor with wall openings and a monumental wood trellis, which serves as a welcoming beacon (this page). Fitness-oriented Los Angelenos prefer to take the exterior stairs and catch some rays at the same time (opposite).







Elevated walkways double as sunshades and decks (top). A cheerful collage of colors and materials distinguishes the three buildings (bottom).

finesse and unexpected combinations of sleek and rustic materials, artistic finishes, and wit that appealed to Brosh in the San Diego building. (Here, downspouts recall ancient Egyptian figures; vents "wear" conical hats.) Laurel Court's simple, boxlike shells were affordable to construct and allowed Palisades to spend more money on distinctive materials and detailing.

The three different buildings respond to the long, narrow site running north-south. Common features—such as steel front doors painted boysenberry—fenestration rhythms, and outdoor circulation unify them. Two long, narrow buildings face each other; one is splayed to create a wedge-shaped courtyard. Brown describes this relationship as "halving the building" and breaking it open on-site, which increases open space, creates surprising nooks, and affords more privacy.

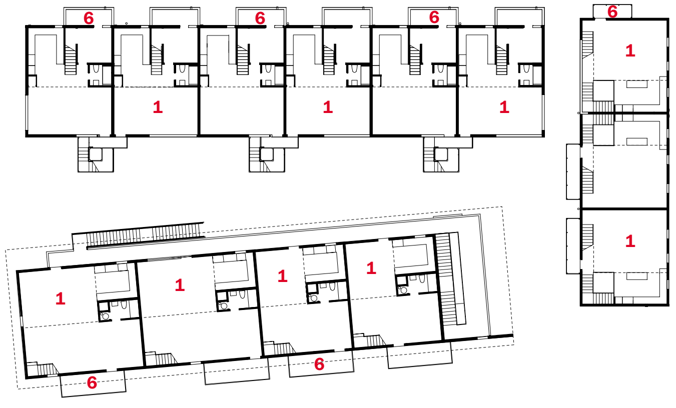
The third building, with an eggplant-colored masonry base and galvanized-sheet-metal siding on the upper stories, stands perpendicular to the other two, capping the site's north end.

Each loft runs the width of its building, so natural light penetrates the interior via large front and back windows, doors with narrow glass slots, and in some units, glass roll-up doors. This high percentage of glass blurs the boundary between indoor and outdoor space, erasing barriers between rooms and decks. Large, private roof decks sit atop two of the buildings. Among the beckoning garden areas is a walled "outdoor room" that, with its citrus trees and fountain, echoes Southern California's Spanish heritage.

Commentary

The Lofts at Laurel Court create a private yet playful, airy living environment that energizes the neighborhood without shrieking at the uninspired buildings around it. Through careful siting of upbeat architectural forms wrapped in geometric greenery, Laurel Court revitalizes the urbane-but-casual-living formula that has long made courtyard housing desirable. ■

1. *Loft*
2. *Garage entry*
3. *Courtyard*
4. *Outdoor room*
5. *Sleeping*
6. *Balcony*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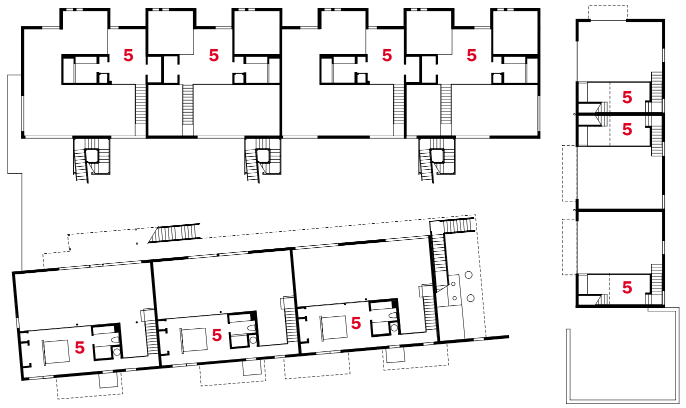
THIRD FLOOR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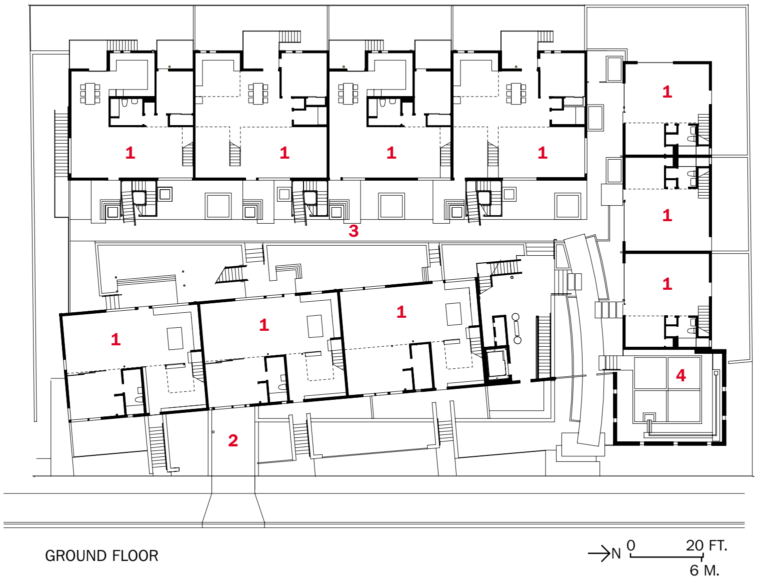
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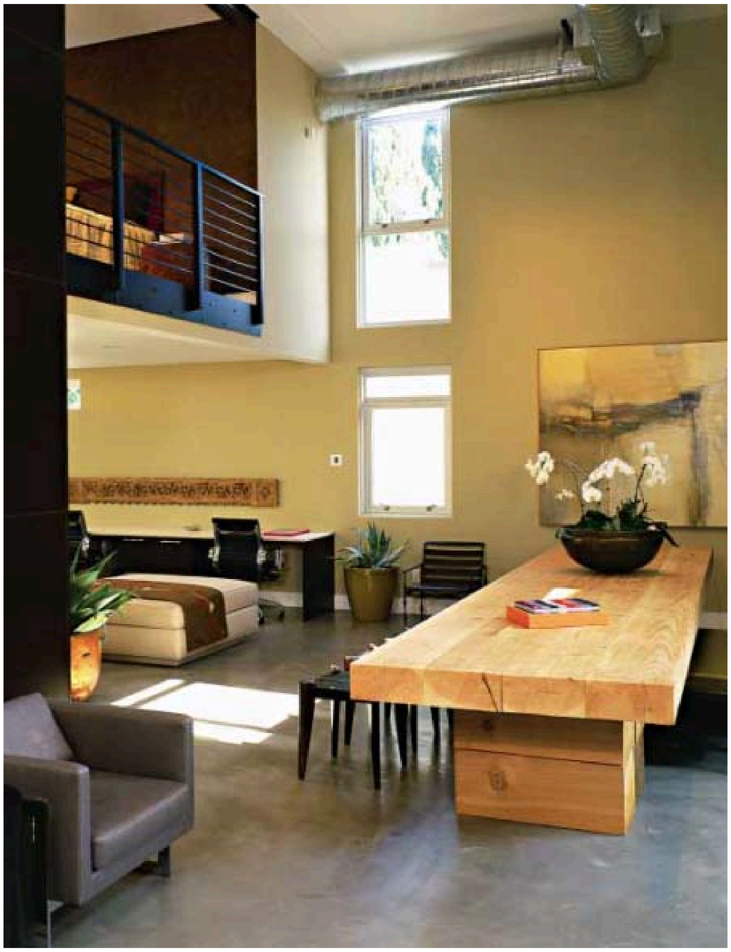
GROUND FLOOR

High ceilings and industrial-style windows make the units seem larger than they actually are (top). Open floor plans and sleeping lofts provide flexibility for live-work or artist's studios (bottom).



138 Barcom Avenue

Sydney, Australia

3

ENGELEN MOORE TURNS A BUILDING TO THE NORTH AND INSERTS A SMALL COURTYARD TO BRING LIGHT AND AIR INTO SLEEK LOFTS.

By Michael Walters

Architect: *Engelen Moore—Ian Moore, design architect; Will Fung, project architect; Tina Engelen, Guy Lake, Yosihito Kashiwagi, Sean Radford, Rowena Hockin, Manuelle Schelp, Claire Meller, Dua Cox, project team*
Client: *Jumbuk Pty*
Engineers: *Arup (structural); Medland Mitropoulos (m/e/p)*
Landscape consultant: *Good Manors*
General contractor: *Arenco*

Size: *26 living units, 30,000 square feet*
Cost: *$5.87 million*
Completion date: *September 2002*

Sources
Prefabricated concrete-fiber wall system: *Ritek*
Aluminum curtain wall: *Svendour*
Aluminum skylights: *Symonite*
Aluminum windows and doors: *Capral*
Joinery and paneling: *Valcore*
Stainless-steel benchtops: *Stanford Stainless Steel*
Fluorescent paint: *Vipond*
Marmoleum flooring: *Forbo*
Bathroom fixtures: *Duravit*

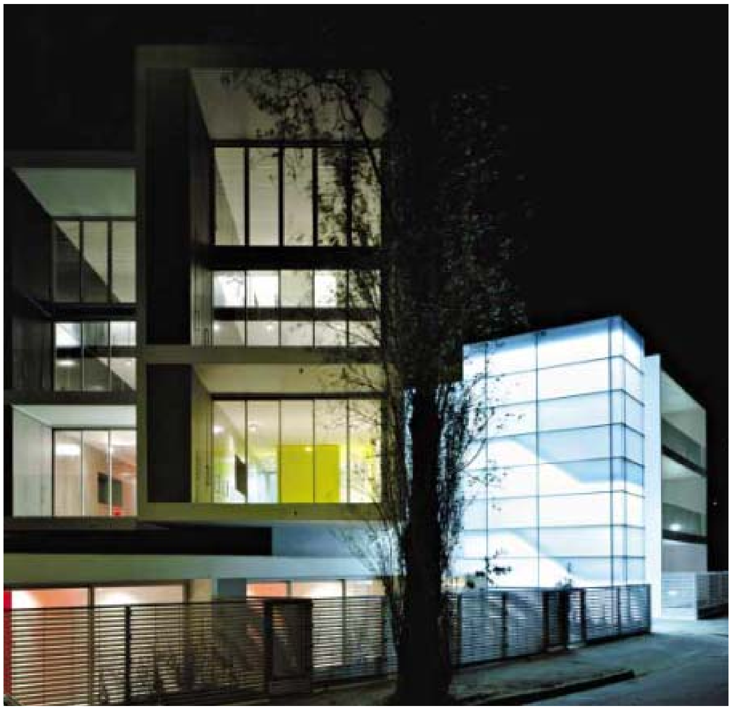
For more information on this project, go to Projects at **www.architecturalrecord.com**.

When it comes to Sydney apartments, harbor views are paramount, especially if they include a peek at one of the city's two famous landmarks: the Harbor Bridge or the Opera House. So architect Ian Moore and his former firm Engelen Moore (he and business partner Tina Engelen recently dissolved the practice and went separate ways) faced a huge challenge in attracting urban professionals to 138 Barcom Avenue, an apartment block in an unsavory inner-city neighborhood that boasted no views—not even of the city itself—and little exposure to the coveted northern sun. As if to underline the challenge, one of the project architects was mugged on-site at the start of the job.

Program

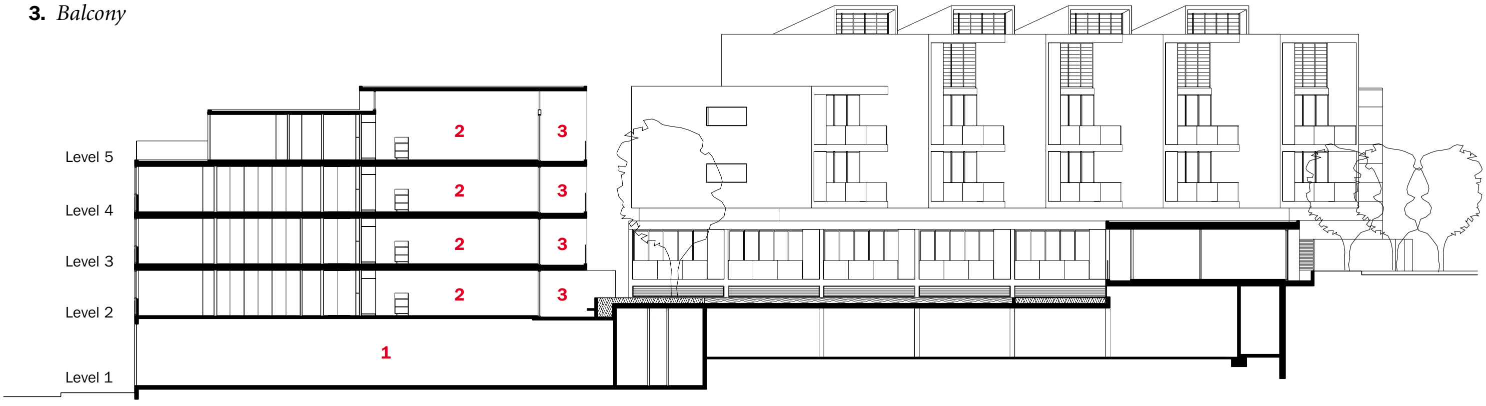
One of Sydney's leading real estate agents, John McGrath, decided to try his hand at property development with 138 Barcom Avenue. Impressed with Engelen Moore's reputation for sharp-edged Modernism—as seen in the Rose House [RECORD, July 2001, page 108]—and the firm's caché with upscale professionals, McGrath asked Moore to create a strong piece of architecture rather than just maximize the number of units on the site. "I wanted to develop something that reflected Sydney's new personality—fresh, contemporary, and bold," states McGrath.

Michael Walters writes from Sydney for Vogue Living *and* Belle.



PHOTOGRAPHY: © ROSS HONEYSETT

1. **Parking**
2. *Loft*
3. *Balcony*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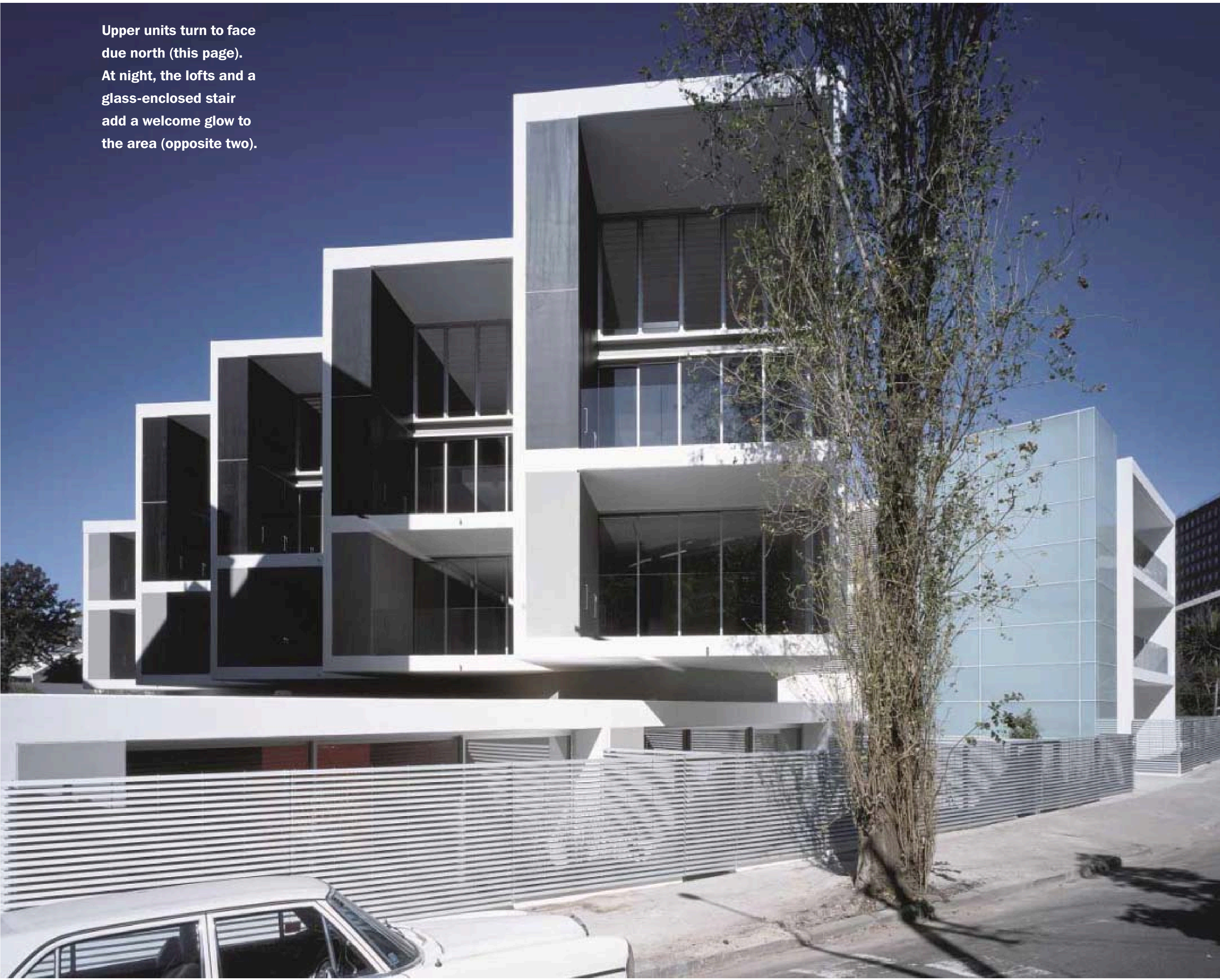
EAST-WEST SECTION



Upper units turn to face due north (this page). At night, the lofts and a glass-enclosed stair add a welcome glow to the area (opposite two).

The complex adjusts to its tricky site, orienting units to a central courtyard (opposite and left), tucking the parking entry under the southwest corner (bottom left), and spreading out on Barcom Avenue (bottom right).

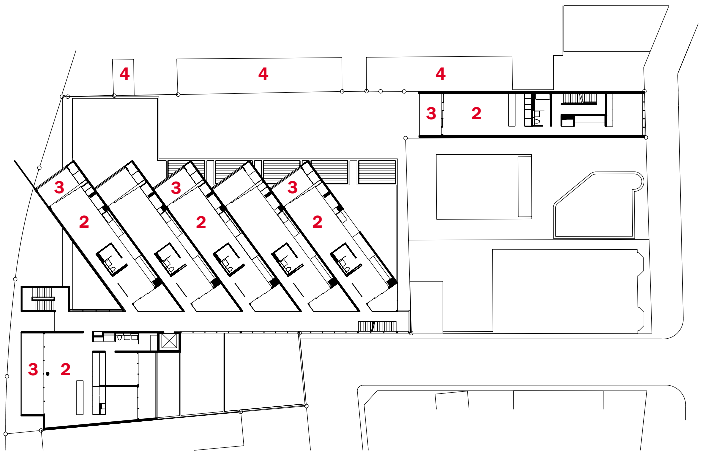
To accommodate modern lifestyles, the project would feature generously sized units with large balconies. Perhaps Moore's toughest task was bringing enough daylight into a complex with a narrow north-facing street frontage and a six-story commercial building looming next door. McGrath's bet on Engelen Moore paid off when all of the 26 residential units sold 18 months before construction began.

Solution

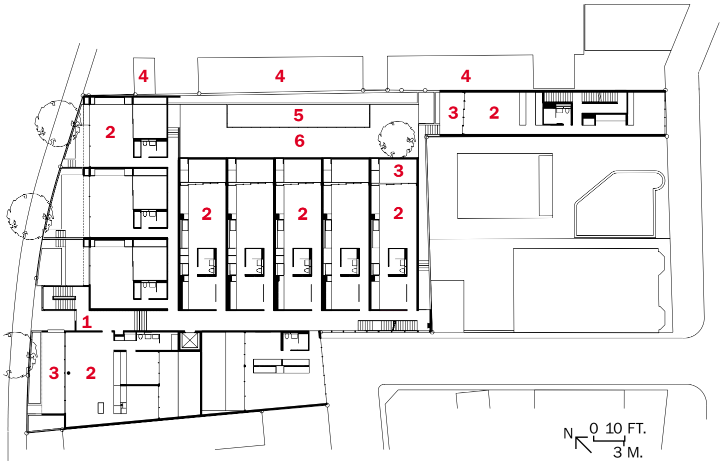
An irregular site with three street frontages and an 18-foot drop between two of them forced the architects to devise a plan that pieces three small buildings together like a puzzle. By inserting a narrow courtyard into the center of the site and using grade changes to tuck parking underneath, Moore turned the property's problems into advantages. In doing so, he created an apartment complex that twists to capture light and air and offers seven different types of living units.

Facing Barcom Avenue, the main building rests on a podium with parking below and a combination of 700- and 1,025-square-foot studios on the main floor. Above this base rises the project's identifying feature: a series of tubes oriented due north. Each tube contains a single-level studio apartment with a 1,500-square-foot duplex above it. The northern twist of the upper-level units not only adds a dynamic element to the building's form but introduces an important environmental element: a small triangular yard at the back of each unit that serves as a thermal chimney and brings daylight into the center of the building. Indeed, the entire building relies on natural ventilation, not air-conditioning, for cooling.

South of the main building and connected to it by a long aluminum-louvered, open-air corridor and a



LEVEL 3



LEVEL 2

1. *Entry*
2. *Loft*
3. *Balcony*
4. *Light well*
5. *Pool*
6. *Courtyard*

glass-enclosed stair, a three-story wing contains 1,200-square-foot, two-bedroom units and one 700-square-foot studio that sits above the entrance to the car park.

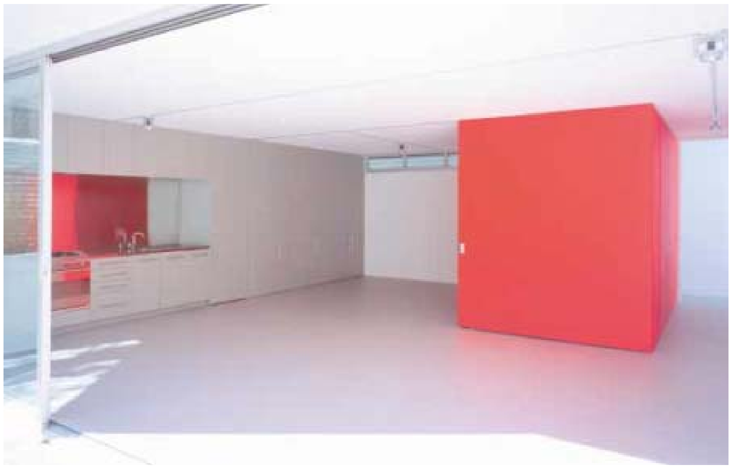
The smallest of the three buildings occupies the northeast corner of the site, with its own entrance off a back street, and houses three single-floor, 1,025-square-foot units that include small home offices.

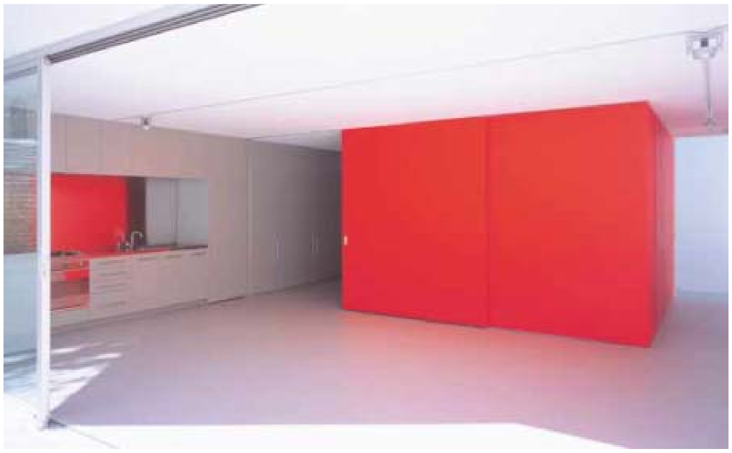
For the apartments themselves, Moore says, "I like letting people know how much space they have rather than cutting it up with walls." So he designed each unit as a simple tube with a central, brightly colored bathroom pod creating the only division. A "working wall" running the entire length of the apartment (and onto the balcony) integrates storage, laundry, entertainment equipment, and kitchen in one long plane. Six glass panels can slide into the working wall, opening the living space directly to the balcony. The central pod also has sliding doors that can either enclose a bedroom or create one flowing interior space.

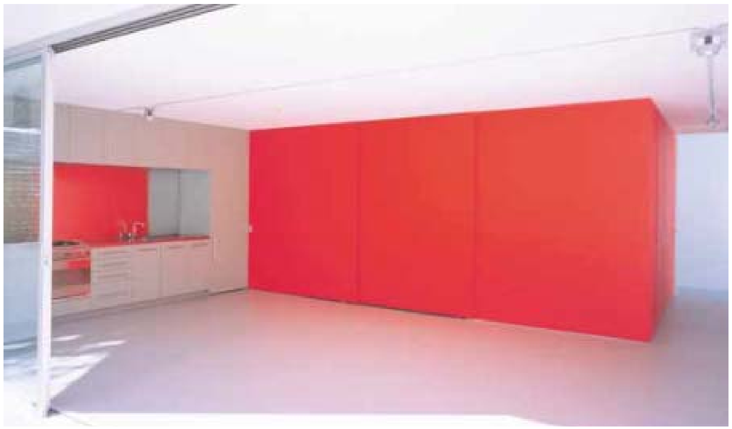
Commentary

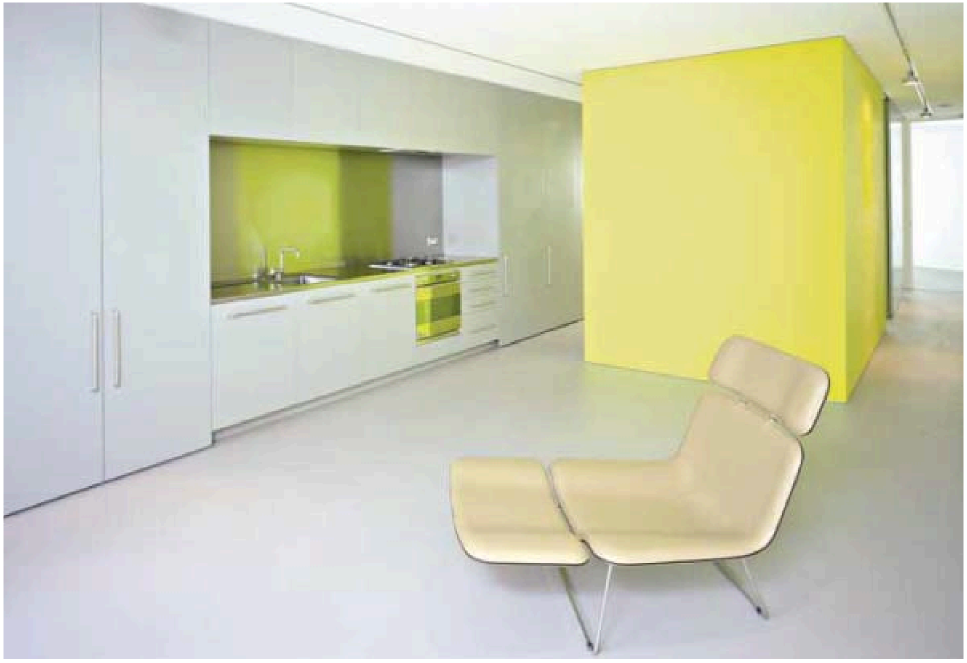
The environmentally responsive Modernism of 138 Barcom Avenue serves as a striking critique of the British Victorian terrace home that pervades Sydney's inner suburbs. While making a veiled reference to the terrace house by adopting its 16-foot width, Moore creates a bold alternative designed specifically for Sydney's climate, not adapted from a model taken from a far-off land. ■

Residents select one of several bright colors for their bathroom pod, which divides the living space. Panels slide from the pod to define a bedroom (below). Although the complex has seven unit types, all feature a "working wall" that congregates storage, kitchen, and entertainment in one plane (opposite three). A glass stair maintains a sense of openness (opposite, top right and bottom).









Humboldt Mill + Annex

Minneapolis

4

JULIE SNOW ARCHITECTS INSERTS A LOFT BUILDING THAT ACCOMMODATES A MODERN LIFESTYLE INTO A HISTORIC MILL DISTRICT.

By Camille LeFevre

Architect: *Julie Snow Architects—Julie Snow, FAIA, Ben Awes, Christian Dean, Bob Ganser, Tim Bicknell, AIA, Dan Vercruysse, Martha McQuade, Malini Srivastava, Ernesto Ruiz Garcia, Zoe Adler Resnik, Kenwood McQuade, Craig Roberts, Jim Larson, project team*
Client: *Humboldt Lofts*
Engineers: *Mattson McDonald Engineers (structural); Doody Mechanical, Jack Snow Engineering (mechanical); Elliot Contracting, Paulson & Clark Engineering (electrical); Hanson Thorp Pellinen Olson (civil)*
General contractor: *Bor-Son Construction*

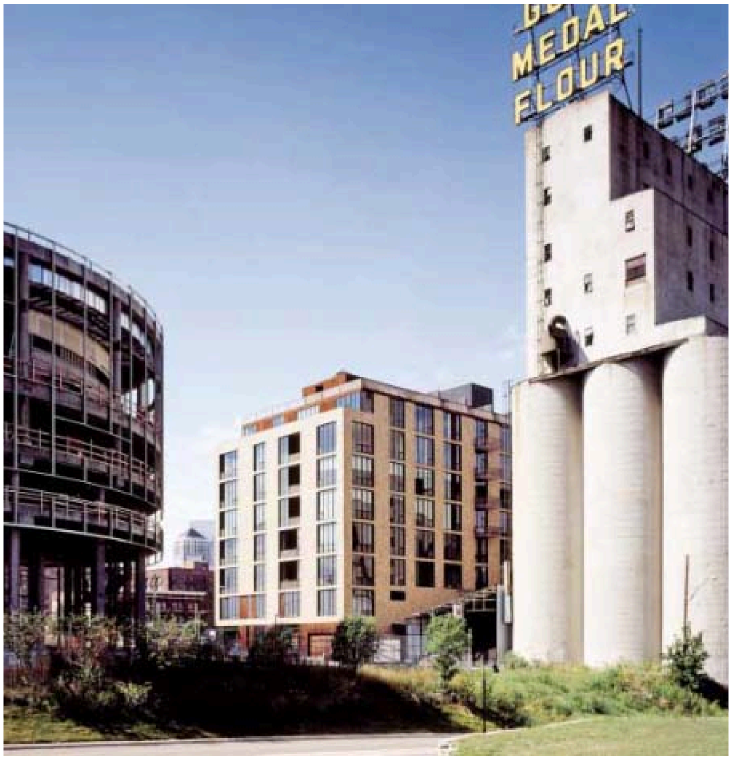
Size: *148,000 square feet*
Cost: *$19 million*
Completed: *2004*

Sources
Concrete: *Potter Form & Tie; PT Systems; Aggregate Industries*
Masonry cladding: *Corning-Donohue/Womder-Klein Brick*
Steel panels: *A. Zahner Company*
Aluminum windows and curtain wall: *Kawneer*
Glazing: *Viracon*
Cabinet work: *The Woodship of Avon*
Carpet: *Lee's*
Elevators: *Traction Elevators*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Little more than a 100 years ago, the shores of the Mississippi River in Minneapolis hummed with a booming flour-milling industry. Powered by St. Anthony Falls, the mills made Minneapolis the "Flour Milling Capital of the World" and gave rise to such multinational corporations as General Mills and Pillsbury. By the 1960s, most of the mills had been torn down or gutted by fire.

In the 1990s, the area saw the beginning of a renaissance driven by private developers and individuals investing in riverfront housing. A local player, Brighton Development, took the plunge, converting several dilapidated structures into high-end housing and contributing to a process that helped create the Mill City Museum [RECORD, February 2004, page 122]. The 148,000-square-foot Humboldt Mill + Annex is Brighton's latest project here and combines lofts created within the historic Humboldt Mill (built in 1873) with a new Modernist structure on the site of a former train shed.



Program

Sandwiched between the Mill City Museum on the west and Jean Nouvel's Guthrie Theater (scheduled to open in 2005) on the east, the project needed to bridge old and new architectures, in terms of massing and materials. But before anything could be built, the mill's burned-out masonry shell had to be stabilized. When pigeons flew off of the windows, bricks would tumble to the ground, remembers Julie Snow, FAIA, who designed the project. Snow also had to overcome the fact that 200-foot-high concrete grain elevators block views of the Mississippi River to the north.

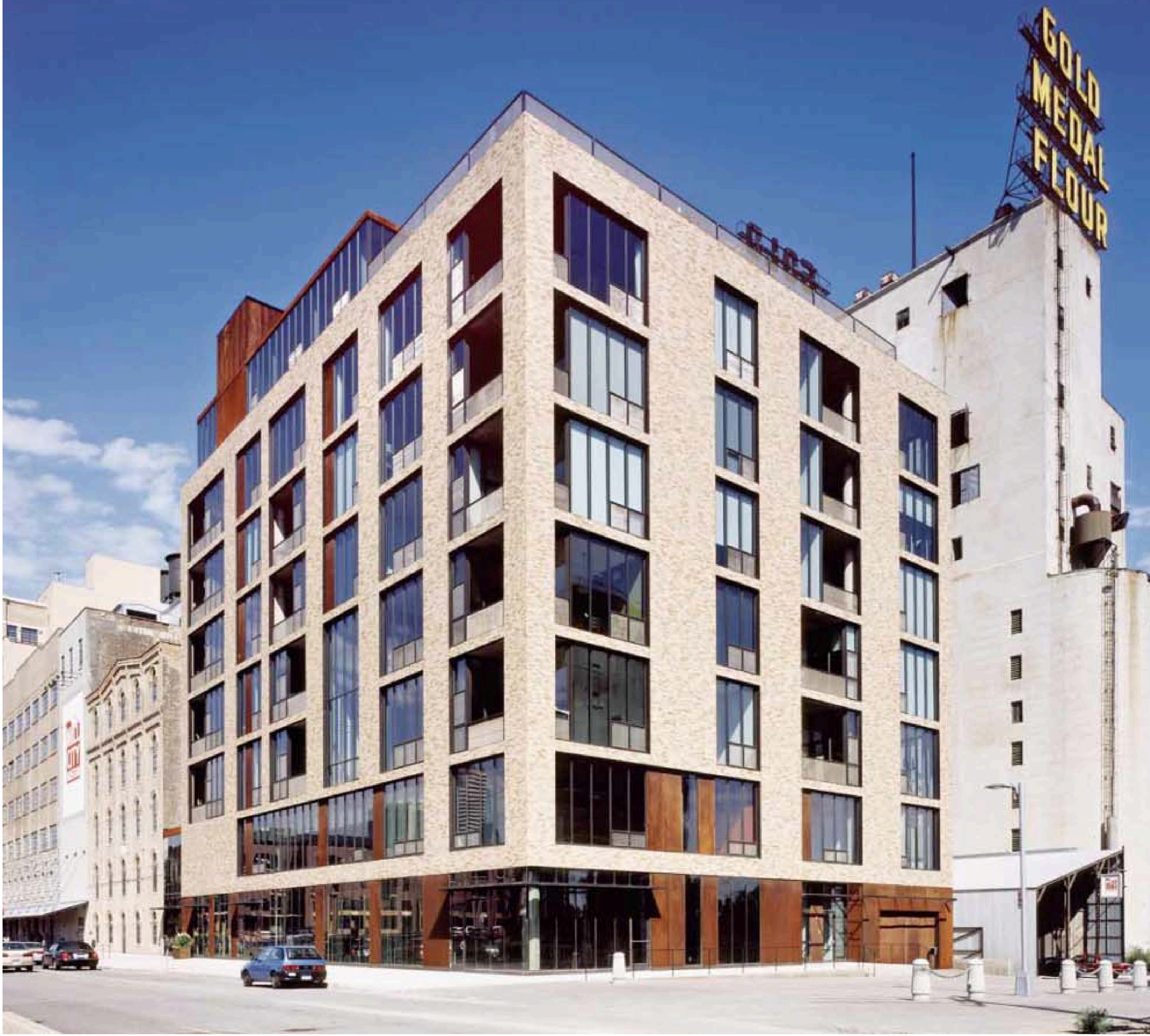
Solution

To keep the brick shell intact as it was being stabilized, construction workers erected a steel structure inside the five-story Humboldt Mill, and then installed a new structure of posttensioned concrete slabs and columns. Snow respected the character of the old building as she converted it, retaining its deep-sill windows and the empty timber-frame pockets in its brick walls. She created large living lofts, just two to a floor, echoing the large industrial spaces that used to be here. And she incorporated one of the mill's exterior walls as an interior wall in the elevator corridor that now links

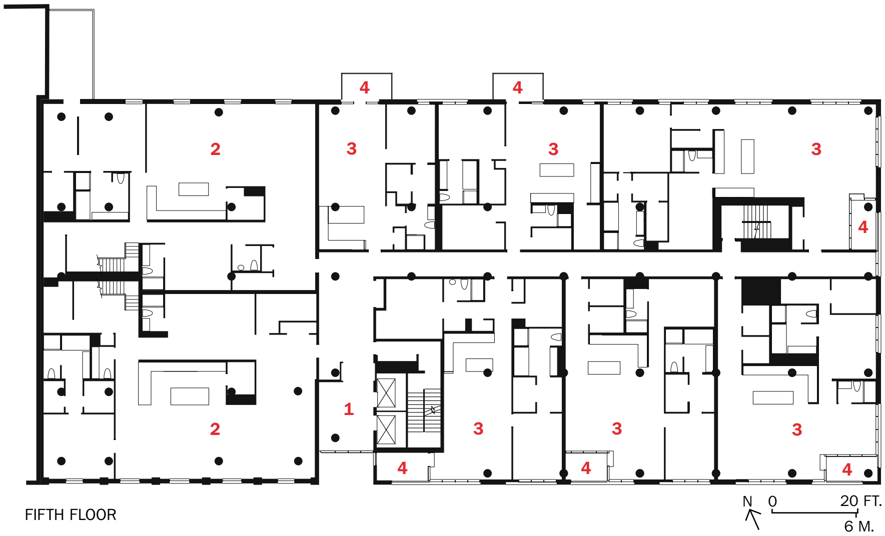
Camille LeFevre writes about architecture and the performing arts for a variety of publications.

PHOTOGRAPHY: © DON F. WONG

The new housing block sits between Nouvel's Guthrie (left in photo opposite) and the Mill City Museum (right in photo opposite). Snow's building employs an industrial idiom with brick and Cor-Ten steel (near right), while offering outdoor spaces such as recessed balconies (below) and roof terraces (far right).



1. *Lobby*
2. *Loft (old building)*
3. *Loft (new building)*
4. *Balcony*



FIFTH FLOOR

the mill to the annex.

For the nine-story, 36,300-square-foot annex, Snow designed a building that combines pale brick with Cor-Ten steel and glass. “One interprets history rather than recreates it with additions in historic districts,” she explains.

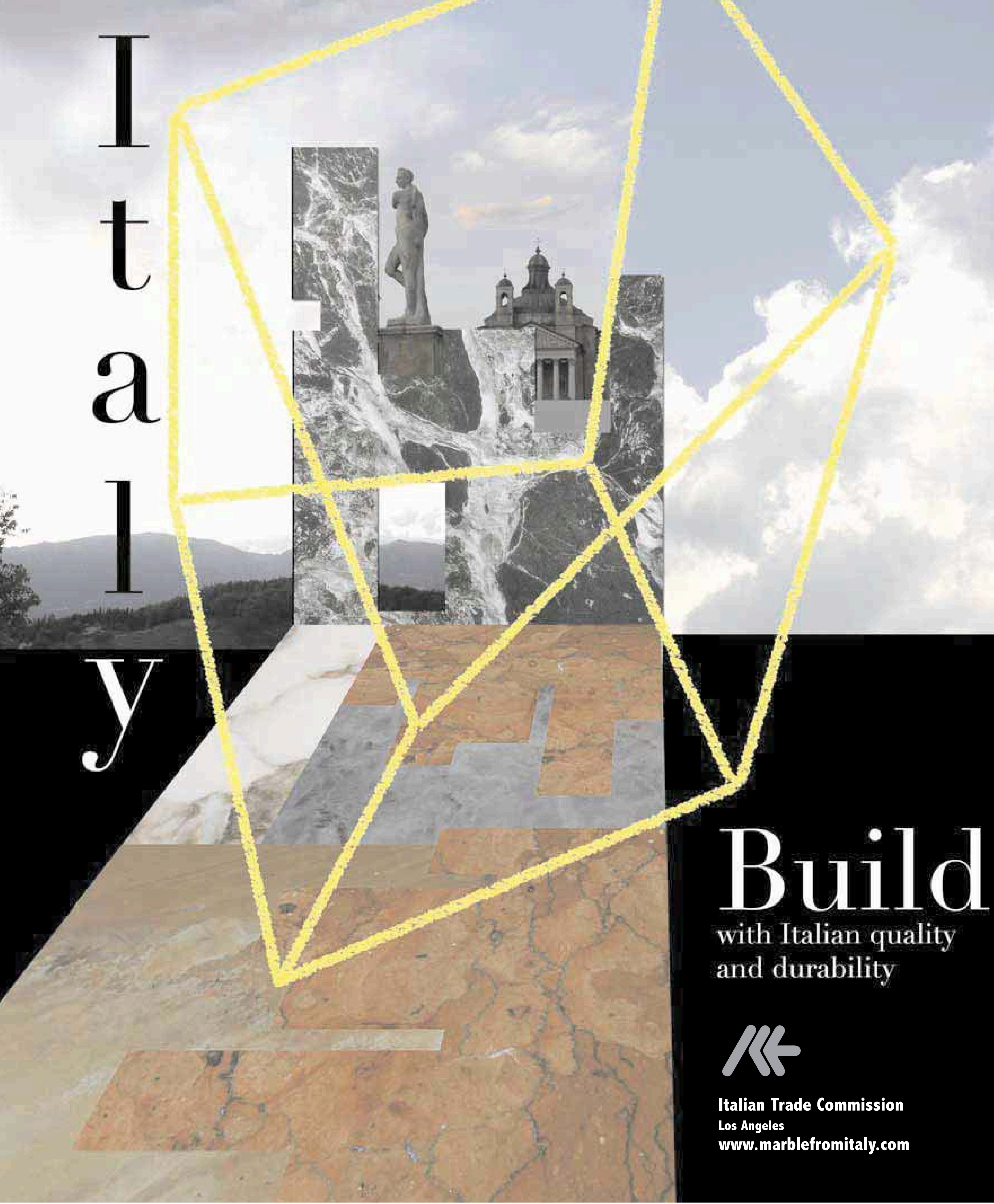
To provide the best possible city and river views for the 30 condominiums in the annex, Snow configured a variety of layouts, with larger units toward the top of the building. (The annex also has underground parking and first-floor retail.)

On the south side, one-bedroom condos with recessed terraces offer views of downtown Minneapolis. One-bedroom-plus-den condos on the north side look directly and unapologetically through 11-foot-high windows at the old grain silos 80 feet away; these units’ rooftop terraces and balconies offer oblique views to the river, framed by the area’s remaining old mill structures. The project also includes fifth-floor units with their own gardens and terraces on the roof of the mill building, and several duplexes with living spaces overlooking the city and bedrooms with views to the silos and river. Two penthouses occupy the top floor, along with five private cabanas and a public roof terrace.

Commentary

Targeting empty-nester couples, Snow designed flowing lofts where residents could compress a lifetime of possessions into spaces that would inevitably be smaller than the houses they had in the suburbs. And to help these people get to know one another, she created opportunities for social interaction, from the light-filled elevator lobbies and corridors to the communal rooftop terrace. With its dead-on views of milling-industry icons and across-the-street proximity to the Guthrie, Humboldt Mill + Annex offers modern living spaces embedded in a historic district with lots of natural, cultural, and commercial amenities. ■

Interiors echo the industrial spaces that once occupied the old mill building, with open-plan living areas, 12-foot-high ceilings, concrete floors, and exposed ductwork (below). The penthouse (left) features granite countertops, stainless-steel appliances, and a large roof terrace.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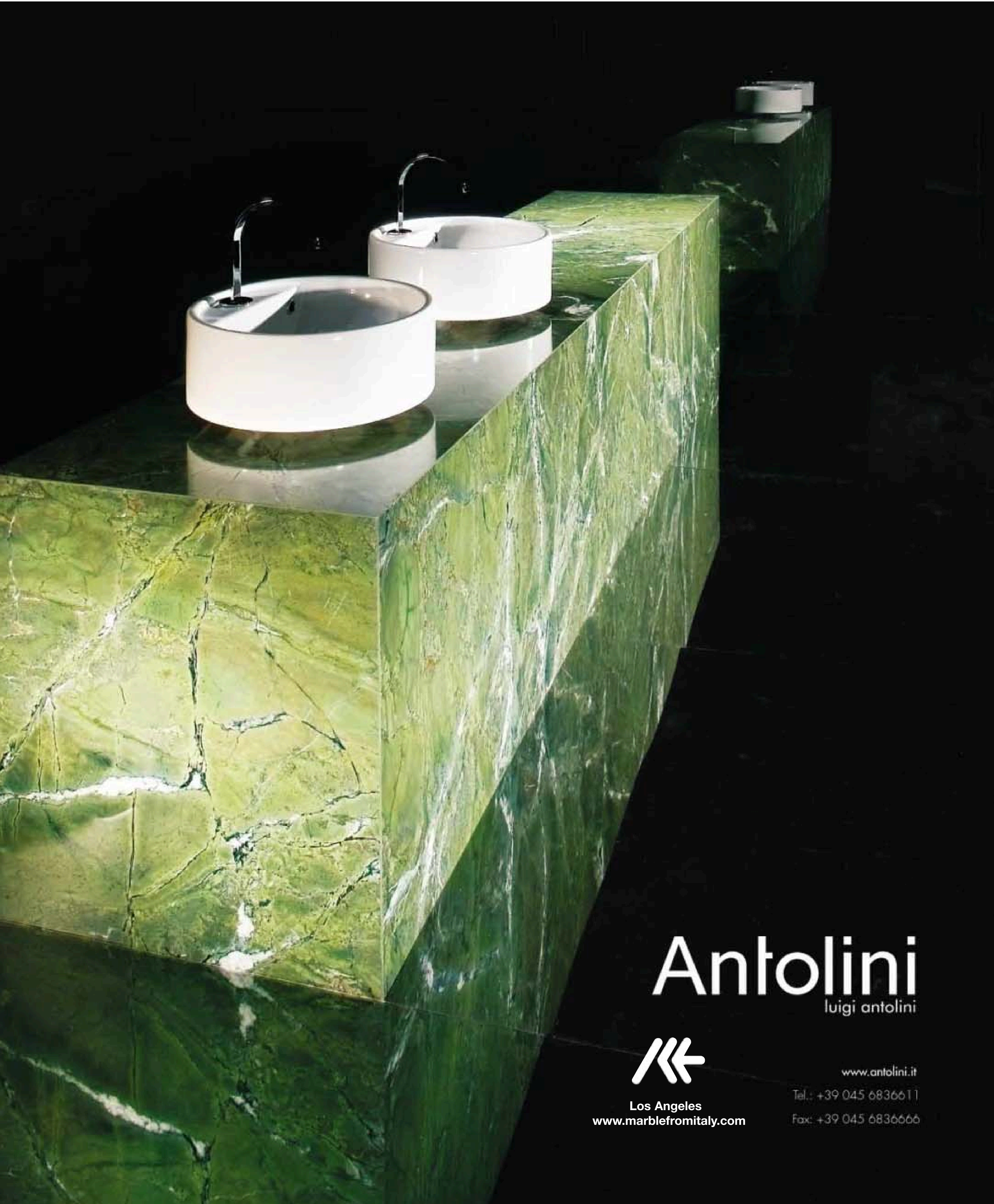

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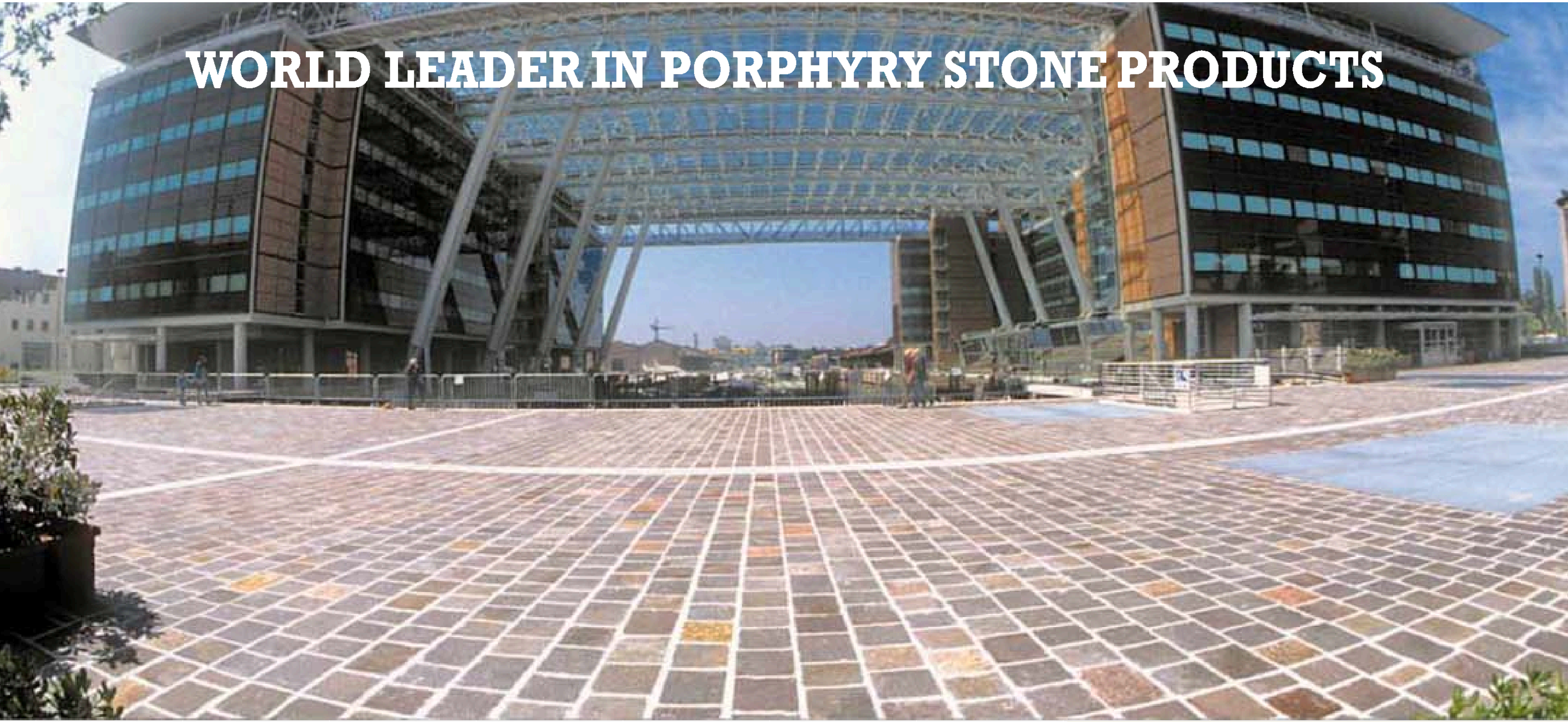
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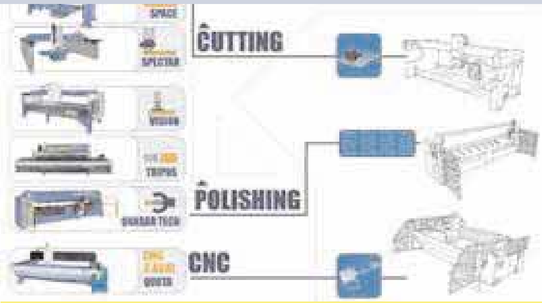

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Italian stone materials are renowned throughout the world because of their wide range of colors and the size of their deposits. Italy is one of the leading world producers of raw materials, producing over 10.5 million tons of blocks per year, which are quarried and processed by almost 10,000 companies with 60,000 workers who are the most highly skilled in the world. Italy's raw material imports amount to over 2.3 million tons per year with a value of approximately 500 million USD while exports, which are almost all finished products, amount to 3.5 million tons per year with a value of over 2 billion USD.

Italy's modern stone industry has a long tradition behind it and has managed to maintain its world leadership thanks to its highly skilled workers and avant-garde technology. The latter is the result of the close relationship between stone suppliers and machinery manufacturers which has led to positive results such as the production of more and more advanced machinery, the setting up and perfecting of plants already operating, guaranteed continuous assistance, on-site experimentation of new prototypes and remote assistance through the web sites.

This is why Italy is also the world leader in the field of technology with over 400 specialized companies and a work force of around 8000. Thanks to the quality of its technology Italy is the most important country for the processing of stone materials too.

The market demand for stone materials varies a great deal, especially because of color trends, and this means that suppliers must be able to offer the widest possible range of materials. Over the years Italy has developed its role as intermediary and has become a world stone marketplace. In addition to the large quality of local materials Italy trades numerous materials imported from all over the world.

Many Italian stone materials have been on the market for centuries; some are no longer available because of limited resources while others, thanks to new technology and knowledge, have recently been placed back on the market or reintroduced after a period of inactivity of the quarries. Stone materials are divided up into various market categories. This division may not reflect scientific concepts but it is useful for a quick review of the main Italian "litho types".

The term marble is used to define all carbonate materials or other materials with similar physical-mechanical characteristics. The term granite is used to define all siliceous rocks which contain minerals such as quartz and feldspar. Finally, the stone category comprises all materials, generally not polished such as sandstone and porphyry.

Italian marble varieties come in a wide range of colors and textures like the white and veined varieties excavated from the Apuan Alps in Tuscany. The colored varieties include the green materials from Aosta Valley and Lombardy; the beige materials from Puglia (Serpeggiante and Trani), from Sicily (Perlato) and Lombardy (Botticino); the yellow materials such as Giallo Siena and Giallo Reale.

The Veneto region is rich in several types of colored stone such as red (Rosso Verona, Breccia Pernice, Rosso Magnaboschi) and pink (Nembro Rosato) marble; Rosso Rubino comes from Tuscany; Portoro and Rosso Levanto are excavated in Liguria.

Other colored materials include the Tuscan Arabescato, Orobici, Breccia Medicea and Fior di Pesco Carnico.

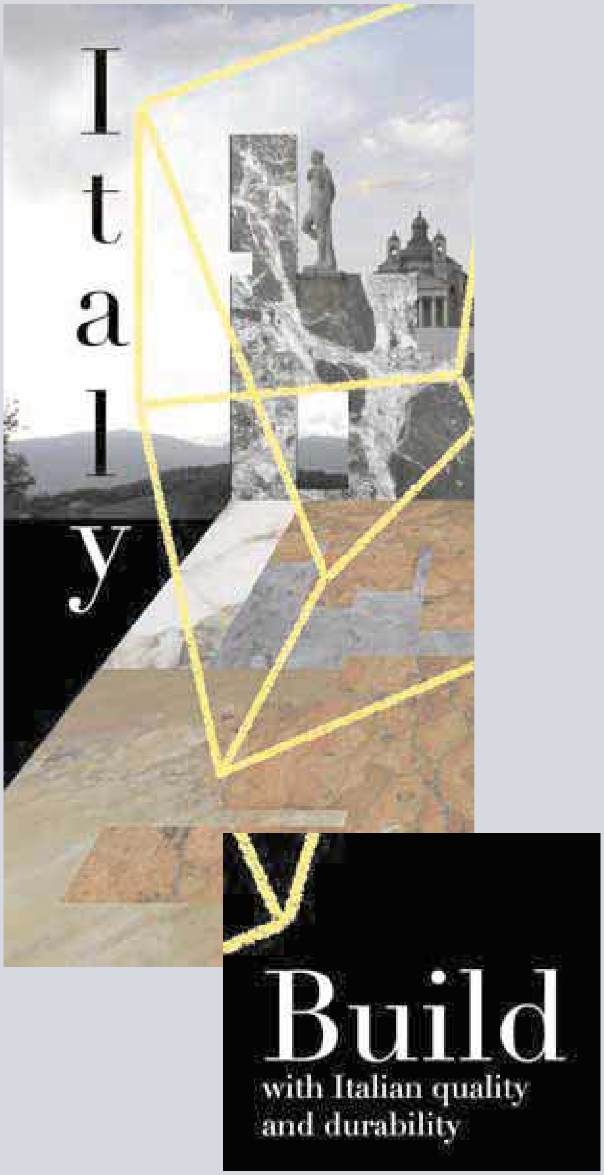
The most important deposits of Travertine, also a well known Italian stone, are found around Tivoli, Rome, Grosseto and Siena, all in central Italy.

Pink and gray Sardinian granites are famous throughout the world for their homogeneity. The pink Baveno granite comes from Piedmont.

The stone category includes the Pietra Serena which is the compact, homogeneously colored gray stone used in the Renaissance palaces and squares in Florence and the Finale, Dorata and Santa Fiora stones.

A few varieties of trachyte, a volcanic rock with brownish-yellowish shades, are also found in the Veneto region. The yellow-colored Pietra di Vicenza is used in many architectural works.

Other volcanic rocks, such as Peperino and Basaltina are quarried in the Lazio region.



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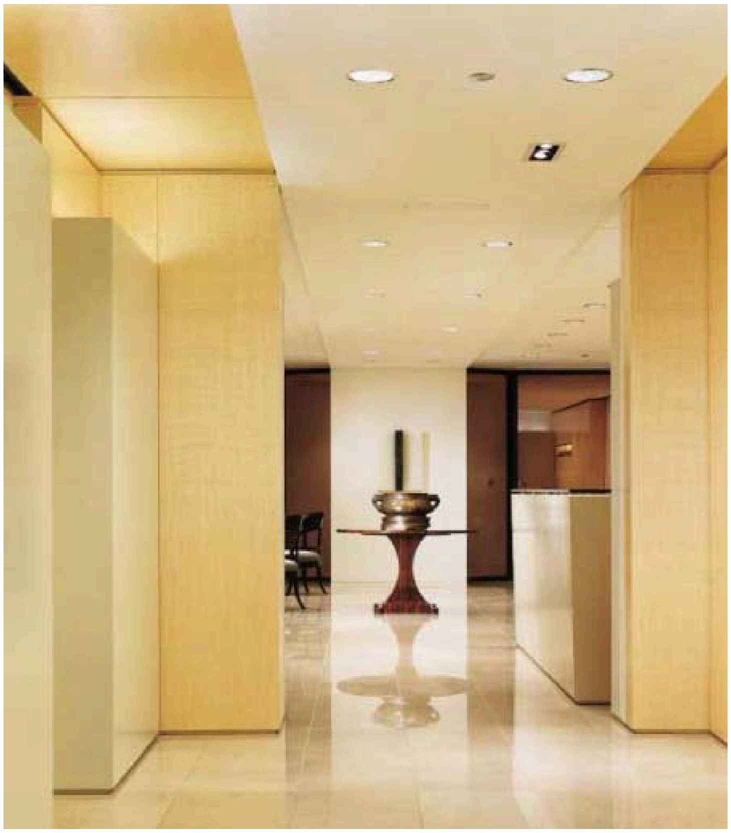
Exotic Woods Gain Popularity in the U.S.

A COMPLEX MIX OF FORCES—FROM AESTHETICS TO POLITICS—DETERMINES WHICH SPECIES OF WOOD ARE HOT AND WHICH ARE NOT FOR INTERIOR AND EXTERIOR APPLICATIONS

By Nancy B. Solomon, AIA

For architects who grew up in the United States, there are certain woods that seem as American—and as familiar—as apple pie: oak, pine, and maple, to name just a few. Early on, some foreign woods became well known in certain domestic applications—examples include teak for outdoor furniture and mahogany for fine cabinetry—but they were indeed the exception to the rule. Times have changed, however, and American architects are being enchanted by a broad palette of exotic species—from afrormosia to wenge—whose names, let alone attributes, many are still trying to learn.

What makes a wood exotic? According to Dan Meyerson, who has been selling wood veneer to architects from the New York office of Bacon Veneer Company since 1993, there is no official definition. “Generally speaking, the layperson thinks that it is a wood from a tropical rain forest,” he explains. For some, however, *exotic* connotes wood from trees that are rare or endangered, no matter where they take root. For those in the building trade, the term can refer to the kinds of woods that are highly desirable—because they are extremely well suited, in terms of both aesthetics and workability, to structure, finishes, or cabinetry—but whose availability is limited. Even if a particular species can be found in abundance, an architect or woodworker may not often find a high-quality specimen within that species that can meet desired design and construction standards.



Gary Lee Partners specified pearl movingue veneer for Madison Dearborn Partners’ Chicago lobby. The temperate wood from Africa was dyed in Italy.

PHOTOGRAPHY: © STEVE HALL/HEDRICH BLESSING

In keeping with Webster’s primary definition of *exotic*—“foreign; not native”—any wood that is not indigenous to our country would fall into this category. Many types of woods are imported into the United States from both temperate and tropical countries, and they are used in any number of applications, from structural lumber to panel veneer. Interest in these woods is clearly growing: According to Foreign Trade Statistics, which is provided by the Department of Commerce’s U.S. Census Bureau (www.fas.usda.gov/ustrade/ustimbico.asp), 43 percent more tropical hardwood lumber and a staggering 358 percent more hardwood flooring entered this country from abroad in 2003 as compared to 1993.

Contributing editor Nancy B. Solomon, AIA, writes about computer technology, building science, and topics of interest to the architectural profession.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month’s ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 230 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue are found on page 233.

LEARNING OBJECTIVES

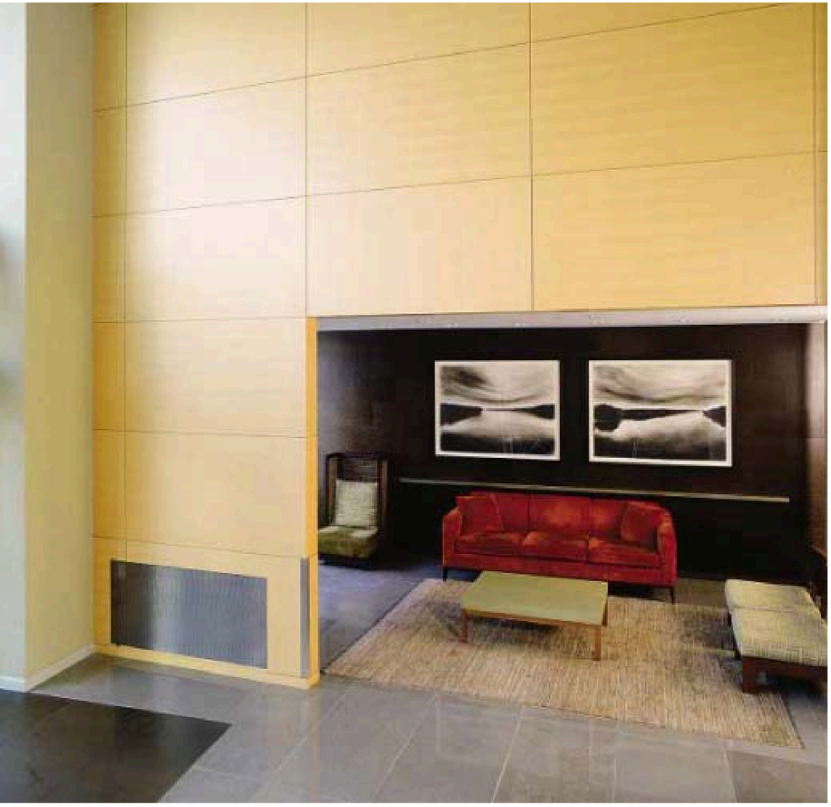
After reading this article, you should be able to:

1. *Define the term “exotic wood.”*
2. *Explain why exotic woods are in demand.*
3. *Discuss sustainability in relation to exotic woods.*

For this story and more continuing education, as well as links to sources, white papers, and products, go to ***www.architecturalrecord.com***.

Ever-changing markets

While general demand is on the rise, the interest in and availability of specific species seems to wax and wane. “There are vague cycles,” says Meyerson. For example, certain species are overharvested as time passes, forcing woodcutters to look elsewhere. As a result, continues Meyerson, “species that people did not know about before occasionally come on the market.” In the late 1980s, African anegre was one of the most common sold woods, recalls Meyerson, but his father, who had been in the furniture business since the 1930s, had never heard of it. And at Milan’s International Furniture Fair several years ago, designers became enamored with wenge, also from Africa. “Suddenly, the world wanted wenge, and there has been a steady demand for it since,” says Meyerson.



Cesar Pelli chose European ash for the veneer of the lobby paneling inside The Solaire (this page) at New York's Battery Park City. The blonde wood, which received a natural finish, has a strong cross-fire figure that suggests ripples in the sand. Harvested from a temperate French forest, the tree provided a sufficiently large sequence for the project.

PHOTOGRAPHY: © CURTIS RYAN LEW/EASTERN MILLWORK & CO.

Sources of mahogany, on the other hand, are drying up. Meyerson argues that this is not because of an actual worldwide shortage in timber stands but because the American species that had been most widely traded (big-leaf mahogany, which grows in Mexico, Central America, and South America) was added to Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at the end of 2003. An international agreement administered by the United Nations Environment Programme (UNEP), CITES regulates trade of wild animals and plants that are considered endangered to various degrees. Species on Appendix I—including Brazilian rosewood—cannot be traded commercially between countries, while certain products made from species listed on Appendix II require an export permit.

Before such a permit can be authorized, however, the designated scientific authority of that country must be able to verify that the specimen was not obtained illegally and that its export will not be detrimental to the survival of the species. According to Global Trees Campaign (www.globaltrees.org), a partnership between Fauna & Flora International and UNEP World Conservation Monitoring Centre, an international standard for sustainable mahogany management does not currently exist, nor is a system in place to determine whether the export of a particular specimen of mahogany would be harmful. Such a system is currently being developed by the World Conservation Union (www.iucn.org).

There are also cycles in which clients seem to prefer either dark or light. "We have gone through a light-wood cycle for the past 10 or 15 years," reports Meyerson, "and have recently started going darker." The International Wood Products Association (www.iwpawood.org), based in Alexandria, Virginia, recently compiled a list of what its members consider to be the most common tropical woods currently being traded in the United States (see chart, page 226).

Aesthetic appeal

By looking at many of the exotics, one can instantly understand their allure: They offer a rich array of varied colors and patterns that can be very different from our domestic variety. Aesthetics, however, is not the only reason for the growing interest: Practitioners cite strength, stability, durability, and rot- and termite-resistance as part of the charms of these species. Surprisingly, availability and cost are also mentioned as factors.

Johnston Architecture, a firm in Wilmington, North Carolina, that designs beachfront houses, initially specified redwood for many exterior applications because the homegrown lumber could stand up to the hurricane winds and salt spray typical of harsh coastal environments. "But redwood got so much more expensive in the late 1990s that we

The tropical hardwoods on this page come from FSC-certified forests in Brazil: Housing (above) in Burry Port, Wales, is clad in red louro. Decking (near left) at the Nike European headquarters in Hilversum, Holland, is massaranduba. Sun blinds for a building at De Montfort University in Bedford, England (above far left), were fabricated with angelim pedra. The deck outside of Amsterdam's new Passenger Terminal (below far left) is lined with louro gamela.

PHOTOGRAPHY: COURTESY PRECIOUS WOODS, EXCEPT ECOTIMBER (TOP RIGHT)

started looking for other durable species," says partner Ian A. Johnston, AIA. He discovered, for example, that the bending strength of ipe is double that of pine, and mahogany does not warp or twist when ripped or expand and contract due to changes in humidity.

Many woods from the tropical rain forest, in particular, tend to be extremely dense because they grow very slowly beneath a canopy of larger trees. In addition to being stronger, more linear, and more impervious to moisture, wood from such dense species generally develop very consistent grain patterns. Their size and visual regularity allow for the production, in sufficient quantity, of a high-quality "sequence," or consistent pattern of veneer, across a particular application. "A wall that is made of lots of small sequences looks like a patchwork quilt," explains Meyerson, "while large sequences give more uniformity, thereby achieving a more pleasing and visually rhythmic application." Because of this preference for large quantities of consistent veneer, designers of large-scale interior projects often favor woods from the tropics.

Sustainability

One cannot begin to discuss exotic woods without quickly touching on the issue of sustainability and certification. Deforestation has been associated with many dire consequences, from decreased bio- and cultural diversity to increased erosion, flooding, and global warming. The situation is particularly acute in tropical countries because their rain forests are home to a greater diversity of species—many of which have yet to be discovered—while sociopolitical conditions in those parts of the world make it highly likely that a noncertified forest suffers from poor—if any—management practices. "Forests in these areas may simply be cut down for agriculture, ranching, or even fuel by poor people who see no other options," notes Liza Murphy, forest products marketing associate at the New York–based Rainforest Alliance (www.ra.org), a nonprofit organization that works worldwide to protect ecosystems and their inhabitants.

Despite increased concerns about the health of the rain forest—and international agreements such as CITES that attempt to protect endangered species—the decimation continues. At a recent conference in Bonn, Germany, marking the 10th anniversary of the Forest Stewardship Council (FSC), a Greenpeace representative reported that, using satellite imagery, the Brazilian government documented that more than 494,000 acres of Amazon land were deforested in a two-week period in July 2004 alone.

In an attempt to slow down or reverse this kind of devastation, several organizations have formed in the past 10 years to establish universal principles and criteria for responsible forestry practices. Perhaps

These are some of the most common tropical woods currently traded in the United States. Many species—both on and off this chart—are available as certified product. Some less-known species may exhibit characteristics comparable to those listed here, while others may offer unique qualities that could be highly desirable for a particular project. Choosing alternatives helps relieve pressure on those that are frequently specified.

LOW DENSITY

Lighter-weight woods for interior use.

- Ceiba (Sunauma)
- Elliottis Pine
- Jarrah (Eucalyptus)
- Faveiria
- Melapi
- Okoume
- Radlata Pine
- Virola

MEDIUM DENSITY

Many well-known woods used in joinery, furniture, and flooring.

- Afrormosia
- Agathis
- Andiroba
- Anegre
- Birch (Eastern European)
- Imbuia
- Iroko
- Khaya (African Mahongany)
- Lacewood
- Lauan
- Mahogany (Big-Leaf)
- Meranti
- Nogal (Peruvian Walnut)
- Nyatoh
- Ramin
- Rubberwood
- Sande
- Sapele
- Spanish Cedar
- Tauari
- Teak
- Wenge

MEDIUM / HIGH DENSITY

Variety of reliable species for structural, industrial, and other hard-wearing applications.

- Bubinga
- Cupiuba
- Kapur
- Kempas
- Keruing
- Purpleheart

HIGHER DENSITY

Strongest and most durable species for sea defense, dockyard work, bridges, and other extra-demanding situations.

- Azobe/Ekki
- Bangkirai
- Cumaru
- Greenhcart
- Ipe
- Jatoba (Brazilian Cherry)

CHART: COURTESY INTERNATIONAL WOOD PRODUCTS ASSOCIATION

the best known is FSC (www.fsc.org), which is now headquartered in Bonn. Specific guidelines are tailored to each country to accommodate particular regional conditions. And accredited certifiers, including two based in the United States—Scientific Certification Systems and Rainforest Alliance's SmartWood Program—are trained to work with companies to assess whether or not they are in fact meeting their countries' specific criteria for forest management. If yes, the companies are issued a forest-management certificate for a designated period of time.

SPECIFYING CERTIFIED WOODS REQUIRES MORE LEAD TIME THAN IS NECESSARY FOR NONCERTIFIED WOODS.

According to UNEP, nearly 46 million hectares (113,668,475 acres) of forestland distributed over 61 countries has been certified by FSC as of September 1, 2004 (www.certified-forests.org).

FSC has also established a chain-of-custody certificate to ensure that products labeled as FSC-certified are truly created from certified timber. This is necessary because many lumber companies buy from both certified and noncertified sources. Certified timber, therefore, must be tracked from the forest through production to the end user so that buyers of certified products are indeed getting what they paid for. The same groups that assess forest companies for the management certificate also handle chain-of-custody certification.

Murphy's position at the Rainforest Alliance was established this year, in large part to assist architects and other design and construction professionals in identifying and specifying certified wood products from both here and abroad. Suppliers of such products can be found on the Web site of their SmartWood Program (www.smartwood.org). Certified forest products can also be located through the Forest Certification Resource Center (www.certifiedwood.org), which is sponsored by Portland, Oregon–based Metafore (www.metafore.org), another nonprofit working to protect the world's forests.

In addition to requesting certified woods of well-known species, architects are encouraged by Rainforest Alliance, Metafore, and other like-minded environmental groups to consider both lesser-known and lower-grade woods. In *Wood for Building Green*, a practical guide recently published by Metafore, the organization explains that, by specifying a larger range of types and grades, design professionals will help increase the value of diverse forests, which in turn will provide greater economic incentives to maintain healthy forest ecosystems worldwide.

According to Murphy, specifying certified woods—especially those from the tropics—requires a little more lead time than that necessary for noncertified woods because the outlets are more limited. But she dismisses the idea that it presents a significant increase in cost. Although wood companies must pay a fee to go through the certification process, Murphy argues that suppliers are not seeing an overall price premium: "In many cases, the review process finds ways to lower costs," she notes.

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Ply Architecture,
Ann Arbor, MI

Long Residence

Cutler Anderson Architects,
Bainbridge Island, WA

Cognito Films

Randall Stout Architects, Inc.,
Los Angeles, CA

Abbe Science Center, Solebury School

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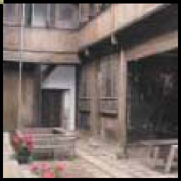
Princeton, NJ
Real Cedar Excellence Award

Merit *Award*

Modular 1 House

Studio 804, Inc./ Dan Rockhill & Associates,
Lawrence, KA



Yin Yu Tang House

John G. Waite Associates, Architects,
Albany, NY

Citation *Award*

Garden Pavilion

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Sauna Pavilion

Webster Wilson,
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Jackson Meadow

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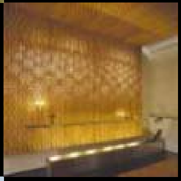

The Kate and Laurance Eustis Chapel

Eskew+Dumez+Ripple,
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Canopy Colonnade

Arthur Erickson Architectural Group/ Nick Milkovich Architects,
Vancouver, BC

Minton Hill House

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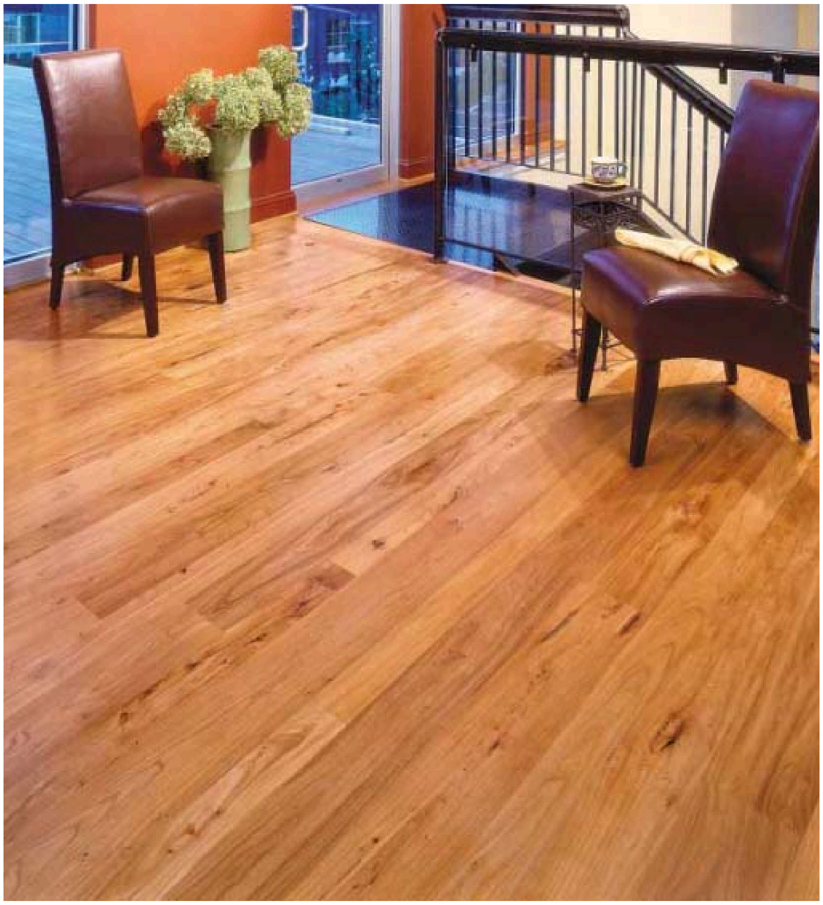
Representatives from Mountain Lumber, based in Ruckersville, Virginia, traveled to China to purchase Chinese elm timbers that had been dismantled from ancient structures (lower right). The logs, which had been assembled with mortise-and-tenon technology, were trucked to Canton (upper right) and then sailed to the U.S., where they were milled into floor planks. The first installation—into a Charlottesville shop (below)—was completed in September.



PHOTOGRAPHY: © PHILIP BEAURLINE (LEFT); COURTESY MOUNTAIN LUMBER COMPANY (RIGHT TWO)

There are people in the industry, however, who respectfully disagree: "It's cumbersome, unrealistic, and requires a lot of money," says Meyerson of the FSC certification process. "FSC doesn't have a monopoly on proper forest management techniques." Large suppliers like Bacon are particularly frustrated that LEED, the sustainable-design rating system developed by the U.S. Green Building Council, only recognizes FSC certification. "People look at FSC as the broad-brush cure-all to a very complex and varied situation," says Meyerson. He believes that many wood companies have successfully managed forests for generations and, therefore, "don't need anyone else telling them they are doing it right." Murphy concedes that this may be true in temperate zones, but emphasizes that greater care must be applied in the tropics.

Some architects who are particularly concerned with sustainable goals actually prefer undertaking their own research. "I don't find relying on FSC as good as doing your own homework," says architect Jay Dalgliesh, AIA, of Dalgliesh, Eichman, Gilpin & Paxton in Charlottesville, Virgina. He will request and review literature on woods from sources that he has worked with for years. And he has been known to visit logging sites in person. Among other factors, Dalgliesh makes sure that the planting and harvesting operations do not encourage invasive species or contribute to erosion.

David W. Hess, senior associate at Cesar Pelli & Associates in New York, thinks highly of FSC, but notes that, during the design phase of The Solaire at Battery Park City in New York—in the fall of 2000—relatively few FSC-certified woods were available, and they were being offered by smaller companies that lacked easily accessible showrooms. The firm opted for a noncertified European ash, supplied by Bacon, as the veneer for the paneling in the lobby of the 27-story residential tower. This ash—which is a different genus from its American counterpart—comes from a temperate forest in France that has been in operation for generations. "Western Europe has incredibly good sustainable forestry practices. It made sense to us to use the wood, even though it was not FSC-certified, because it was handled in a way that was ecologically sound," says Hess.

To maximize the green content of the paneling—and obtain credits for the building's overall LEED rating, which was ultimately set at the gold level—the firm specified a medium-density-fiberboard (MDF) substrate. According to Hess, this engineered product is made from 100 percent recovered and recycled wood fiber and, unlike many FSC-certified products, does not rely on formaldehyde, which has its own environmental drawbacks, as a binder. Today, with better access to a broader selection of sustainable materials, the firm plans to specify FSC-

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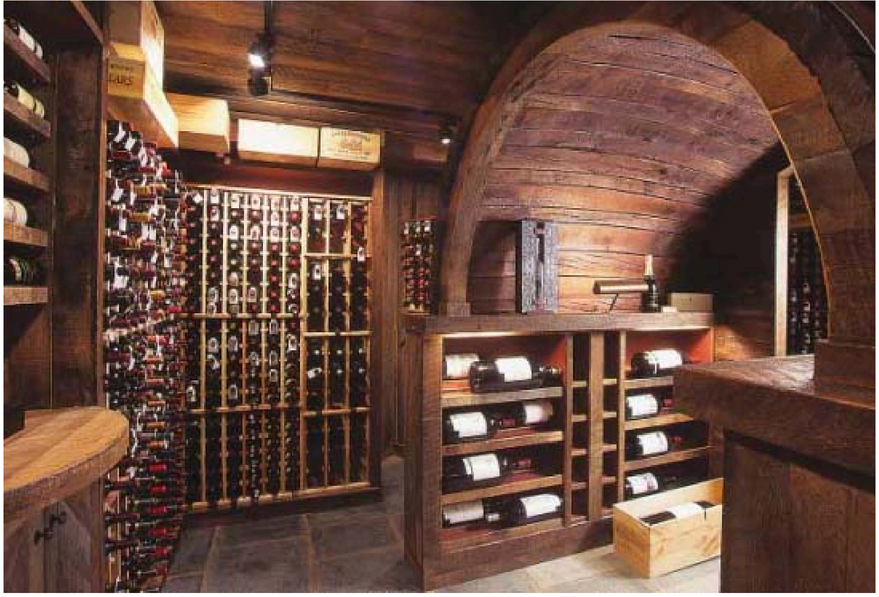

A wine cellar incorporates oak lumber from an Irish brewery and English cider mill.

certified English beech for another residential tower at Battery Park City.

One interesting twist to the potential sustainable-exotic quandary is the reuse of lumber from demolished foreign structures. Mountain Lumber Company in Ruckersville, Virginia—founded by Willie Drake in 1974—has salvaged highly desirable woods from some highly unlikely locations. For example, when Guinness Breweries in Dublin, Ireland, and Bulmer Cider Mills in Hereford, England, replaced their traditional wooden vats with state-of-the-art stainless-steel containers a few years back, Mountain Lumber imported 170,000 board feet of English brown oak. From this antique wood, they were able to develop several lines of flooring, including one with a rich reddish patina that resulted from the interior face of the wood soaking for years in cider. Some of this wood—plus a large wine cask made of French oak that Mountain Lumber brought back from Chateau Talbot in Bordeaux, France—found its way into a new wine cellar that Jay Dalgliesh designed for a refurbished house in Charlottesville, Virginia, which was completed in 2002.

And, just this year—after three-and-a-half years of negotiating—Mountain Lumber obtained 100,000 board feet of ancient Chinese elm timbers that had been dismantled from 400-year-old Ming Dynasty structures in China's Luliang Mountains to make way for modernization. Some of these beams are 20 feet long and 25 inches in diameter—large enough to make flooring planks that are uncommonly long and wide. Its heartwood is a golden yellow and its grain dark brown. "The wood is gorgeous," says John Williams, general manager at Mountain Lumber. "It has a certain glow to it that makes it come alive." The first installation of this flooring was completed in September, for Verity Blue—a Charlottesville company that specializes in Italian tableware. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Exotic Woods Gain Popularity in the U.S." using the learning objectives provided.
- Complete the questions below, then fill in your answers (page 318).
- Fill out and submit the AIA/CES education reporting form (page 318) or download the form at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. According to Webster's definition of *exotic*, which describes exotic wood?
   a. wood from a tropical rain forest
   b. wood from trees that are rare or endangered
   c. wood that is highly desirable, but availability is limited
   d. wood that is not native or indigenous to our country

2. Imported hardwood flooring increased from 1993 to 2003 by what percentage?
   a. 353 percent
   b. 43 percent
   c. 7 percent
   d. 100 percent

3. Which of these woods did designers become enamored with at the Milan Furniture Fair?
   a. anegre
   b. wenge
   c. teak
   d. afrormosia

4. What does the Convention on International Trade in Endangered Species regulate?
   a. trade of tropical forest lumber
   b. trade of flora that are determined to be threatened
   c. the International Wood Products Association
   d. trade of mahogany

5. The allure of exotic woods includes all except which?
   a. strength and durability
   b. varied patterns and colors
   c. rot and termite resistance
   d. recognizability and familiarity

6. Woods from tropical forests are desirable for large-scale interior projects for which reason?
   a. they are stronger
   b. they develop more consistent grain patterns
   c. they are impervious to moisture
   d. they look like a patchwork quilt

7. How many acres did the Brazilian government document was deforested in two weeks of July 2004?
   a. 400
   b. 4,000
   c. 400,000
   d. 40,000

8. What percentage of all wood comes from certified forest land?
   a. 25–30 percent
   b. 17–20 percent
   c. 10–12 percent
   d. 3–4 percent

9. What does a Chain of Custody certification ensure?
   a. that the lumber was purchased legally
   b. that the wood came from certified timber
   c. that the lumber is not from extinct species
   d. that the lumber is not from tropical forests

10. Forest Stewardship Council–certified products include which of the following?
   a. French forest ash supplied by Bacon
   b. engineered board with formaldehyde
   c. reclaimed English lumber
   d. antique Chinese lumber

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CONTINUING EDUCATION Section: November 2004

You can earn AIA Continuing Education Learning Units by reading designated articles and sponsored sections in *Architectural Record* and on *Architecturalrecord.com*, and answering test questions following each article. This month's sponsored Continuing Education sections cover a range of architectural and design challenges and innovations and have been approved by AIA for Continuing Education Credit. They are presented by manufacturers and professional organizations who share *Architectural Record's* strong commitment to serve the educational needs of architects. For more information, visit *www.construction.com/ContinuingEd.*

Hardware, Hinges & Handles

Expand your knowledge of factors affecting hardware choices and look to a design theme that manufacturers say is really catching on: carry a theme throughout the project with custom finishes and hardware in an array of new looks. There is a logical sequence in scheduling hardware installation. Learn it, and understand basic hardware applications in a continuing education unit brought to you by leading hardware distributors. ***Page 235.***

Sponsored by JELD-WEN, Hafele America Co., Sun Valley Bronze, Supa Doors, TRIMCO, Omnia Industries, Inc., Doug Mockett & Company, Inc.,

Northern hard maple flooring... the multipurpose surface

Maple flooring has been the ideal choice for sports and athletic facilities for over a century due to its strength, durability and beauty. Correctly specified, installed and maintained, maple floors can provide a dependable flooring surface for more than 60 years, despite varied uses. ***Page 251.***

Sponsored by the Maple Flooring Manufacturers Association

Laminated glass with a Polyvinyl Butyral (PVB) interlayer: Keeping unwanted noise at bay

Noise is an unavoidable part of the daily environment, but it can be especially intrusive when it finds its way indoors. Transferred ground vibrations and sound transmitted through windows are the greatest contrib-utors to noise in building spaces. Hence, improving the ability of windows to resist the passage of sound into building spaces is a high priority. ***Page 263.***

Sponsored by Solutia, Inc. and Arch Aluminum & Glass Co., Inc.

Insulation earns high scores in green projects

Leading edge environmentally sensitive building projects today often incorporate special equipment to recycle water and heat, capture solar energy and manage the climate throughout the structure. But there is one familiar category that deserves early attention in every green design project – building insulation. ***Page 257.***

Sponsored by Owens Corning

Performance override: door specifications meet the "real world"

Architectural wood flush doors are part of a superior interior built environment and now there's an improved standard to guide their specification. A major overhaul to an industry interior architectural door standard–*I.S. 1A-2004 Industry Specification for Architectural Wood Flush Doors*– is ready, and its focus is on performance-driven specifications. ***Page 269.***

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Bronze gate latch for interior doors.
Courtesy Sun Valley Bronze.

Hardware, Hinges & Handles.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Hardware, Hinges & Handles.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 247, then follow the reporting instructions on page 318 or go to the Continuing Education section on ***archrecord.construction.com*** and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Learn a logical sequence in scheduling hardware*
- *Understand basic hardware applications*
- *Understand factors that affect hardware choices*

Doors — we use them countless times every day at home, at work and even when we go shopping or out to eat. They provide access as well as privacy and security. On the outside, they seem remarkably simple and we rarely take note of them. But doors are one of the most vital parts of any building and they are required to perform a number of tasks, from being aesthetically pleasing, to being fire-resistant as well as being sturdy enough to secure an area from unauthorized access. In order to meet all of the demands put on them, there are doors made from several different types of material as well as countless types of hardware for them — handles, hinges, kickplates, doorstops — the list goes on and on. Specifying the right door and hardware for the right job can be incredibly difficult and the choices may seem overwhelming, but becoming familiar with the terminology and types of hardware can make the process much easier. We'll start by breaking the door down into sections:

- *Specifying a door*
- *Hanging the door*
- *Securing the door*
- *Controlling the door*
- *Protecting the door*

Going through these steps will help ensure that no piece of hardware is forgotten or overlooked.

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Shown: IWP Aurora A1322; Inset, IWP Aurora Knotty Alder A1322.

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Specifying a door

A door is typically the first thing people see when they enter a building, home or office. It has the ability to make a strong first impression about the people behind it. Realizing this, more and more architects are specifying doors that make a statement rather than simply provide access and security. There are numerous companies that specialize in custom exterior doors made of exotic woods with specialty hardware and finishes.

But what of the interior doors? "Interior doors, over the years, have been relegated to the standard six-panel design," says Jacob Kluger of Supa Doors. "Now, more and more architects are looking for unique interior door designs for their residential and commercial projects, without significantly affecting their budget. Amazingly, choosing a more appealing stile and rail door can be more affordable and have a bigger impact than upgrading other aspects of the door unit."

Cherry double doors. Courtesy JELD-WEN.

An important aspect to keep in mind when specifying any door is its usage. What sort of building is it being used in? Will it be a high traffic area? Is there a need for it to be reinforced for security purposes? What material will be durable enough to withstand the elements if it's to be an exterior door? Does it need to be fire-rated? All of these questions must be considered carefully when specifying doors, whether for commercial or residential usage.

Hanging the floor

There are four basic applications commonly used to hang a swinging door: concealed floor closers and pivots, continuous hinges, pivots and what we will call standard hinges. Continuous hinges and concealed floor closer applications are exactly what their name implies and we will not address them in this article. Pivots would be the hanging method most commonly used on what is called storefront or aluminum and glass doors. These are the entry doors frequently used in a retail or fast food business. Buildings with glass and aluminum doors generally use the pivot application.

What is referred to here as a standard hinge is simply a hinge that has two leaves and attaches to the door and frame. This is one of the more common applications used, generally in a home or office, and this is the type we will be discussing. Its technical name is a full mortise hinge because it mortises (mounts) in a cutout in the frame and a separate cut out in the door. There are many variations of the use of this hinge that will need further investigation if there are special circumstances in the door opening. However, most homes use what is known as pre-hung doors and frames. This means the door arrives already hung on the frame and the door and frame are then installed as a unit.

Many times, residential front entry doors also come installed in the frame as a pre-hung unit. When specifying a door, it is important to note the height, width, thickness and which hand the door needs to be. Residential doors are typically 1 $^3/8$ inches thickness on

As with any design element, there are always new trends emerging in the door industry. Here are some of the latest trends Jacob Kluger of Supa Doors says they're seeing:

- **Movement away from stain:**
  Paint-grade doors (especially MDF) are now the most prevalent door in the market, and are replacing stain grade applications across the nation.
- **Increasing heights:**
  As ceilings rise, door openings rise as well. Architects are drawing attention to their openings by specifying 8'0" tall doors and, in many cases, simply adding a couple of inches to a standard 6'8" or 7'0" door. For commercial projects, 7'6" tall doors are becoming an extremely popular option.
- **Deciding less is more:**
  By modestly modifying "shaker" style doors by using an extra-step sticking and flat panels, architects can add a quiet impact in both contemporary and mission-style applications
- **Returning to the classics:**
  Combining traditional Victorian arched looks with extending ogee stickings and detailed double-hip raised panels is one of the most popular options specified
- **Being bigger and bolder:**
  With the advent of several raised and pocket door moulding options, more homeowners are delighted with "statement" doors that utilize heavy bolection raised mouldings.

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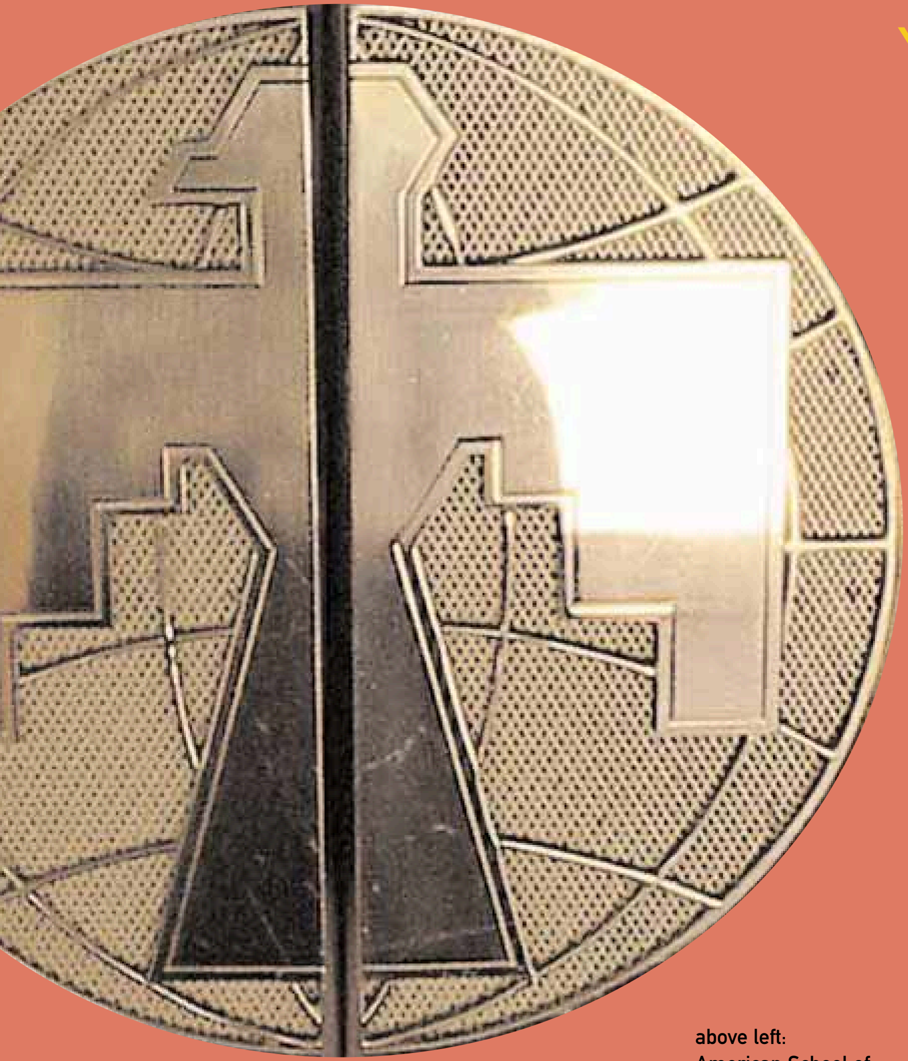

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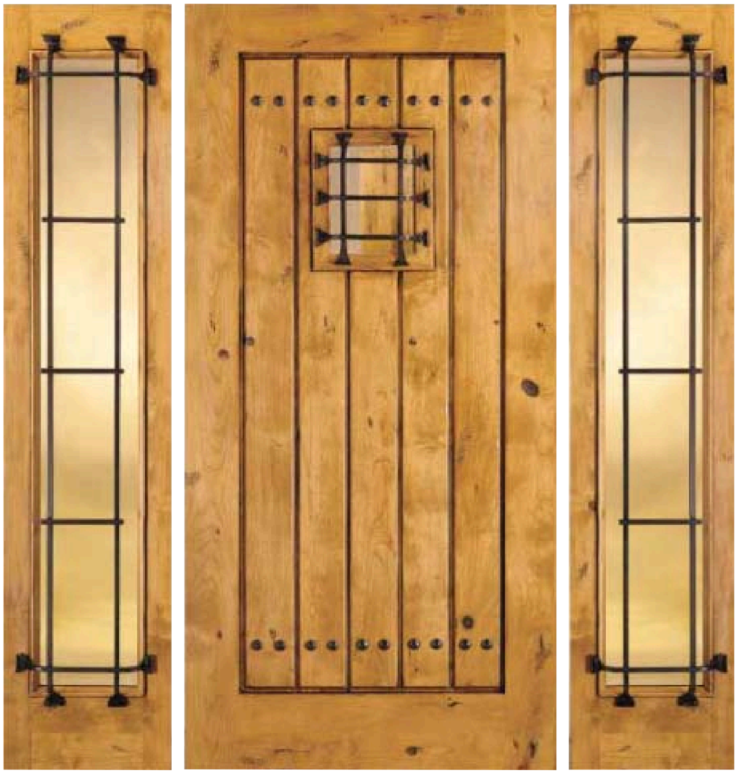

Clear Alder door and sidelights, grilles, round clavos. Courtesy JELD-WEN.

interior doors and 1 3/4 inches thickness on entry doors. The hand of the door refers to the swing direction. For residential use it is typically right hand swing or left hand swing, but we'll look at handing more in depth a little later.

> There is currently a very strong interest in old world accents such as dark bronze or rust bronze. Forged materials are very popular

Having specified a door, be sure to take note of the size of the hinges as well if the door is not a pre-hung door. For residential entry doors they are usually 4 x 4 – 4 inches in height by 4 inches in width when the hinge leaves are open (the first dimension given is always the height) — and 3 1/2 x 3 1/2 inches on interior doors. There is also the color to consider. The most common finish of hinges used in residential building is satin brass clear-coated BHMA (Builders Hardware Manufacturers Association) finish number 606. However, residential locks more commonly use a BHMA 605 finish which is bright, polished brass, so it may be necessary to change the finish of the hinges to match a residential lock finish. From a design perspective, residential hinges can be spruced up by adding a decorative pin tip. On any standard hinges, there are pins which hold the two leaves together. Many manufacturers offer decorative tips which can be added to hinges with a threaded pin insert. Specialty decorative hinges are also available through vendors who specialize in custom hardware.

Many homeowners today are opting for a more retro look to their doors. As Jim Hackett with JELD-WEN notes, "There is currently a very strong interest in old world accents such as dark bronze or rust bronze. Forged materials are very popular." When specifying hardware for these custom doors, Hackett suggests selecting a dark, oil-rubbed bronze finish hinge to accent the finish of the door.

According to Hackett, the demand for stylish retro hardware is only increasing. He's found that "Even in new housing construction there is a trend for a forties-type look and feel with porches and decorative doors and hardware." One of the more popular accents on doors right now are clavos, a 1 inch or 1 3/4 inch circle with a hammered finish or diamond shapes on planked-style doors. What's behind this move towards retro styles? "Individuality," says Hackett. Everyone wants their house to look unique and a door makes a big impact.

When specifying custom hardware for the outside, think about using them inside the house as well. Hackett suggests architects use similar hardware on windows, in kitchens and bathrooms, noting, "Carrying the hardware theme through the entire house is a new design theme that is really catching on."

On the commercial side, the majority of swinging doors with full mortise hinges are 1 3/4 inches thick and use 4 1/2 inch by 4 1/2 inch hinges. Commercial hinges of the same application offer a greater variety of finish choices. In choosing hinges for commercial applications, it is important to know the usage of a door prior to specifying a finish. The fire rating of the door will influence the base material used in the hinge. Only ball bearing steel or anti-friction bearing hinges can be used on a fire-labeled door, as indicated in NFPA 80 Standard for Fire Doors and Fire Windows. Commercial hinges are also available electrified. They serve as a means to conceal and transfer wires through a door and frame. Door monitoring is another function of electrified hinges, used as indicators of whether a door is open or closed. However, it is important to note that electrified hinges are not intended to be load-bearing and are primarily used in the intermediate middle hinge position.

Solid bronze, cast pull. Venetian Hotel, Las Vegas. Courtesy of TRIMCO.

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A common problem discovered after installation of a door is that the hinges were not mounted properly. Robert Commons worked in the construction industry for years and felt there wasn't enough attention to detail when people were installing hardware. "There were these beautiful, custom made doors that people would have installed on their houses, but then the hinges wouldn't work properly because they weren't installed correctly," his daughter Aimee Commons explains. So, to try and alleviate the problem, Robert set about inventing an adjustable hinge that could compensate for mistakes made by installers. He was successful and in April of 2001 he was awarded a patent for his adjustable hinge. In addition to fixing installation errors, Aimee explains, "It's also designed to allow for adjustment when a door will eventually sag or provide equal load distribution so a door is not just riding on one hinge." Manufactured from top-quality stainless steel, the hinges can be used on both interior and exterior doors and are available in numerous sizes and finishes.

When dealing with an exterior door, a stainless steel hinge is often a good option. If the door swings out, a hinge function known as non-removable pin, or NRP, can help secure the door. This prevents the hinge pin from being removed, making it impossible to take the door off the frame.

Knowing finishes and their base materials is important when choosing hinge application and finishes. BHMA has a standard called A156.18 Materials and Finishes which explains the finish symbols and base materials. This is a good reference standard to have in a library. Also available from BHMA are physical finish sample boards. These finishes are used for all hardware finish descriptions in addition to hinges.

Securing the door

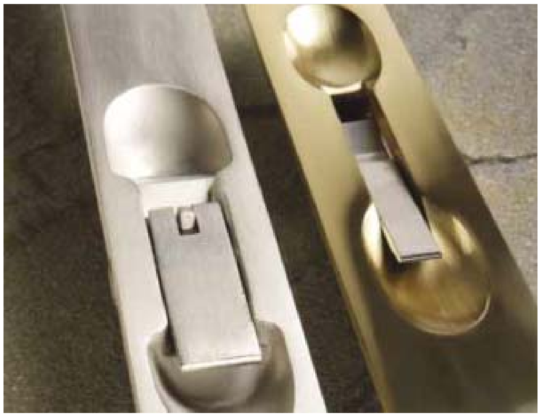
The next area of focus is on securing the door. If there is a pair of doors, securing the door includes both doors. The terminology used in the industry is to call one door the active door and one the inactive. The active door, of course, is the one that will be used for traffic to move through. Generally, when there is a pair of doors, the active door is the one on the right, following the unwritten rule of people traffic flow. It is assumed that most people are right handed and the tendency is to reach for the right side door, approaching it from the secured side. The in-active door is often secured by what are known as flush bolts. These bolts or rods are concealed in the door and, when extended, latch into the frame at the top of the door and into a plate in the floor. Surface bolts are the same application, but are mounted on the door surface and visible. Many homes have surface bolts on pairs of French or glass and wood patio doors.

Securing doors typically involves locking or latching the doors. The focus here is on two basic types of locks: bored and mortise. Bored locks are installed into a hole drilled through the face of a door. They interact with a bolt installed in the edge of the door called a latch bolt. A bored lock is simply a two-piece handle and spindle which is attached by threaded screws through the hole in the face of the door. The latch bolts (commonly called plungers) of locks extend into the metal piece in the frame which is called a strike (commonly known as keepers).

Knowing finishes and their base materials is important when choosing hinge application and finishes.

A mortise lock, on the other hand, has a rectangular-shaped lock body installed in a pocket mortised out of the edge of the door. Mortise locks are more expensive lock, but they are a good application. The handle or knob and plate that you see is attached by threaded bolts extending through the lock body and a spindle connects the two handles. On a home, a mortise lock will be an expensive item that would generally be specified for an entry door. Many residential entry doors use a handle and thumbpiece combination with a deadbolt, as the best protection comes from the deadbolt. For maximum security, when specifying a deadbolt on a home, have a reinforcing or security strike installed as well. It is inexpensive and basically reinforces the strike in the frame with stronger metal and longer screws. This offers better security against someone prying or kicking the door open. Locksmith or home builders store generally carry this item.

The most widely-used finish for residential locks has typically been 605 bright polished brass. This finish is available with lifetime



Architectural pulls. Courtesy of Hafele America Co.

Architectural handle. Courtesy Doug Mockett & Company, Inc.

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finishes, which are highly recommended. The lacquer of non-lifetime finishes eventually wears off and discoloration will occur. Exterior locks will be exposed to pitting as well over time, with wind-driven minute particles constantly attacking the finish in addition to moisture and skin oils from the users. Today, the trend is towards alternative finishes and materials. Forged metal materials and finishes often hold up better with less maintenance than brass.

Securing doors in commercial work brings more products, applications and variations. Again, start with the use of the building and the door and remember that all fire-rated doors must latch. There are four basic functions of locks: entry, storeroom, privacy and passage. Entry function locks involve use of a turn button on the inside of the lock trim in addition to a key for locking and unlocking from the exterior side. Storeroom is a function of a keyed lock that always remains locked and entry is only available with a key. It is not possible to leave this function unlocked. As the name implies, the most common use is for securing storerooms as well as mechanical, janitors and electrical rooms. Privacy function locks do not use a key on the outside but generally use a turn button for locking when inside a room, most typically a bathroom like the ones in most homes. Most will come with an emergency means of entry from the outside, usually a hole in the knob or lever that a pin type instrument can be inserted into, which unlocks the door from outside the room. Passage function involves no locking at all.

Bronze french doors with ring tail levers. Courtesy Sun Valley Bronze.

Generally all locks should allow exit from a room without the use of any special keys or tools. An expression used in the commercial industry in describing lock functions for this application is “always free from the inside.”

When securing a commercial building from the outside, however, there are a number of special keys and tools that can be used to maintain access control. One such system is “an identification and locking system for digital access control,” explains John O’Meara of Hafele America Co. “The core technology is transponders manufactured by Texas Instruments and LEGIC. Low Frequency and High frequency transponders store and transmit data and they can act as an ID in software systems such as membership programs and they can act as IDs or keys in access control systems.” With today’s technology, a very flexible system can be created to meet the needs of any company. As O’Mara says, “Solutions range from one lock and one user, to 10,000 locks and 30,000 users.”

Knowing finishes and their base materials is important when choosing hinge application and finishes.

Locks come in three basic grades: grade 1, heavy duty; grade 2, medium duty; grade 3, residential. What grade is specified should depend on the use of the building. For commercial applications, the design of the lock handles will be lever to meet ADA (Americans with Disabilities Act) accessibility guidelines. More lever lock designs are used in residential homes today as a practical preparation for retirement and for the design aesthetics lever locks can offer in home decorating.

Locks can also be electrified. Mortise or bored locks are available electrified. An often overlooked consideration in specifying electrified locks is that a raceway has to be drilled across the width of the door to accommodate the wires, and an electrified hinge has to be used as well to continue the wire run through the frame. Securing devices can also be electrified and used in conjunction with electrified access control. Electrified locks have voltages that must be considered and they must be specified fail safe or fail secure as well. Fail safe is a term applied to locks that require power to lock and, upon loss of electricity, unlock. The fail secure term indicates a condition that requires power to unlock. One example of the fail secure function is a security institution that must remain secure even if power is lost. Again, knowledge of life safety and fire codes is necessary in choosing mechanical and electrified locks for commercial use.

Securing a door commercially may involve specifying exit devices (or panic devices as they are often referred to). Exit devices were designed for life safety to allow simple exit from a building for many people. Use and application of exit devices will depend on life safety and fire codes. Only exit devices that bear a label indicating that they are approved and tested for use on fire-rated assemblies can be used on fire-rated doors. When to use an exit device and how many are necessary in a building is determined by occupancy use and occupant load. More information on that subject can be found in *NFPA Life Safety Code 101*.

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Controlling the movement of the door

The next section that must be specified is how to control the movement of the door when opening and, if necessary, when closing. All applicable codes should be consulted before specifying which doors need closers. NFPA 80 states fire-rated doors must be self-closing. The use of the door will also determine if it needs a closer. Closers can be concealed or surface mounted. There are four basic applications of surface mounted closers:

- ***Regular arm mount*** *— applied to the pull side of a door and the closer mounts on the door while the arm is mounted to the frame.*
- ***Parallel arm mount*** *— applied on the push side of doors and while the closer is also mounted on the door, the arm lies parallel to the door rather than protruding as it does in regular arm mount.*
- ***Top jamb mount and the closer body*** *— mounted on the frame and the arm on the door. Aluminum and glass doors use the top jamb mount most often.*
- ***Concealed closers*** *— mounted either in the top jamb of the frame or in the top of the door. There are circumstances where you want to use concealed closers for aesthetic reasons; however, for the majority of commercial applications, surface mounted closers suffice.*

Concealed closers are much more expensive and require additional prep work in the door and frame. If specified, it is important to note that enough room must be left at the top of the door to accommodate the closer whether the door is hollow metal or wood. The top horizontal section of a wood door is called the top rail. If windows or panels are to be used in the door, the top rail has to have sufficient room for a closer. Also, the doors require reinforcing to accommodate the closers if thru-bolts are not used. Wood doors need blocking as reinforcement.

So, when specifying closer application, door material and design should be important factors influencing the choices. It is also important to know where the closers will be mounted and make sure all preferences are specified. For aesthetic reasons, closers are mounted on the room side in corridors to maintain a clean look. In stairwells, they should be mounted in the stairwell to keep them out of sight. Bathroom closers with in-swinging doors should be mounted room side. Installation of the closers is as important as choosing a closer and it should not be left to the installer to make an installation location choice.

Concealed floor closers are another option for controlling the door. There are two applications — center hung and offset. They are used with a top pivot and serve to hang the door as well as control it. Floor closers are a good application for entrances and high traffic exterior doors. They offer good durability and leave few exposed parts for vandals. Closers with separate adjustment valves for closing speeds are a better choice because they allow more control.

Architectural pull. Courtesy TRIMCO.

Closers are sized and handed. Opening force and closing speeds will depend on the size of a door. Fire doors are permitted to have the minimum opening force allowable by the authorities having jurisdiction. To meet accessibility requirements, the maximum opening force for interior hinged doors that are not fire doors is 5.0 pounds. There are no requirements for opening force for exterior doors. Closer bodies can be made of cast iron or aluminum material and slim design models are available if aesthetics are a factor. Covers can give the closer a more pleasing look and are available in metal or plastic. Because a closer is located in proximity to the other hardware and generally not next to it, non-plated finishes match the remaining hardware closely enough to be the most widely and economically prudent closer finish type used. Typically, a non-plated finish is used on commercial closer applications, but they are also available in plated finishes if aesthetics are a concern. If a plated finish is specified for closers, it is important that all exposed parts of the closer provided be plated, including the arms. ■

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at: http://archrecord.construction.com/resources/conteduc/archives/0411hardware-1.asp

To receive AIA/CES credit, you are required to read this additional text. For a faxed copy of the material, contact Marissa Wyss at *Architectural Record*, (212) 904-2838 or email marissa_wyss@mcgraw-hill.com. The following quiz questions include information from this material.

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 246. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record*'s website—***archrecord.construction.com***—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. After specification, what is the first step in door installation?
 - **a.** Control the door
 - **b.** Secure the door
 - **c.** Protect the door
 - **d.** Hang the door

2. Which of the following does not meet hardware requirements for fire-rated doors?
 - **a.** Closer
 - **b.** Deadbolt
 - **c.** Latchset
 - **d.** Steel ball bearing hinges

3. When facing a pair of doors from the secure side, the active door is generally which door?
 - **a.** Right side door
 - **b.** Left side door

4. How many basic grades of locks are there?
 - **a.** 4
 - **b.** 3
 - **c.** 2

5. What is the maximum opening force in pounds permissible on interior hinged doors to meet accessibility requirements?
 - **a.** 8
 - **b.** 10
 - **c.** 5
 - **d.** 3

6. You are facing a door in a corridor that has a keyed lock and swings out into the corridor to your right. What is the hardware handing of this door?
 - **a.** Right hand
 - **b.** Left hand
 - **c.** Right hand reverse
 - **d.** Left hand reverse

7. Installing pull handles and push plates on fire-rated doors meets code.
 - **a.** True
 - **b.** False

8. A door with an electric lock installed that requires power to lock and unlocks with loss of power.
 - **a.** Fail secure
 - **b.** Fail safe

9. A storeroom function lockset always remains locked and requires a key to operate from both sides of the door.
 - **a.** True
 - **b.** False

10. When selecting a door closer, what door detail is critical to ensuring a working application?
 - **a.** Rail dimension
 - **b.** Stile dimension
 - **c.** Door thickness

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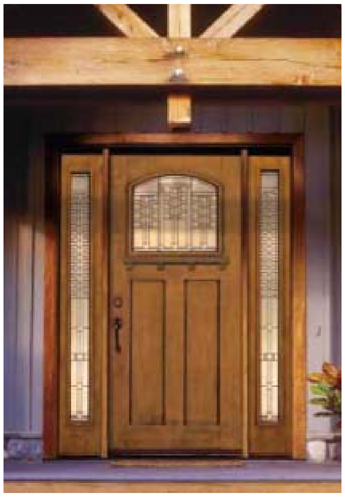

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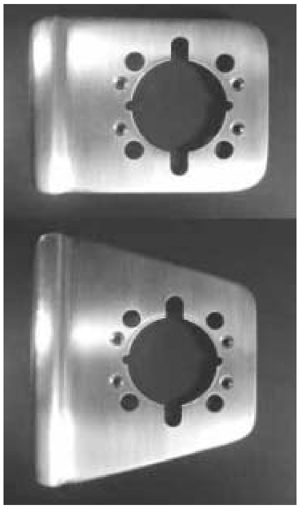

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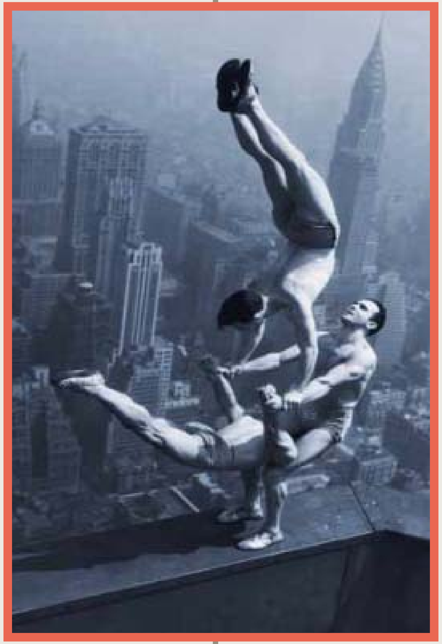

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MFMA PRESENTS

Northern hard maple flooring… the multipurpose surface

Maple flooring has been the ideal choice for sports and athletic facilities for over a century due to its strength, durability and beauty. It is also an excellent choice for multipurpose facilities that host more than sporting events. Maple's versatility and aesthetic qualities make it a wise choice for elementary schools, middle and high schools, college recreation facilities, YMCAs, family centers, churches, aerobic and dance rooms and military bases. Correctly specified, installed and maintained, maple floors can provide a dependable flooring surface for more than 60 years, despite varied uses.

This section will help architects understand, identify and take advantage of the multipurpose opportunities that northern hard maple flooring offers. Upon completion of this section, you will be able to identify details necessary to write a specification for a multipurpose floor.

Northern hard maple is an organic product consisting of patterns of fibers and air pockets that give it a natural shock-absorbing quality. These characteristics, combined with specially designed and engineered subfloor systems, deliver performance and safety ideally suited for a variety of sporting and non-sporting activities. Because multipurpose floors differ immensely from strictly sports floors, it is critical that architects identify the intended functions of the room and select the proper subfloor system. This is especially true for elementary and high school gyms.

"Gymnasiums are constantly being used for more than sports activities; they are used for community meetings, health fairs, bake sales and bazaars. A typical gymnasium will have a gym class throughout the day and then a community meeting in the evening. Northern hard maple flooring functions extremely well in that kind of multi-purpose environment," says Daniel Heney, technical director of the Northbrook, IL-based MFMA. "Regardless of the activity, the floors are expected to maintain their aesthetic appearance, deliver dependable traction and be easily cleaned for the next event."

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Northern hard maple flooring... the multipurpose surface.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 255, then follow the reporting instructions on page 320 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Describe the various characteristics that make maple flooring an ideal multipurpose surface.*
- *Describe what is important to consider when writing a specification for a multipurpose floor.*
- *Describe what things you should NEVER do to a multipurpose maple floor.*

Safety

Northern hard maple's hard-but-resilient character, natural shock absorption and area elasticity are enhanced by specially engineered subfloor systems. Subfloor systems can be customized to emphasize maple's natural elasticity and shock absorption (ideal for aerobics rooms or dance floors), stiffness (ideal for basketball or volleyball) or both. This versatility makes maple floors ideal for multiple uses including athletic performance, dances, roller skating, etc. Whatever the intended purpose or subfloor, northern hard maple provides dependably uniform grip and traction to athletic footwear that can maximize performance and safety while minimizing injuries.

According to candidates for the certification of the American Board of Orthopaedic Surgeons, the majority of anterior cruciate ligament (ACL) injuries are non-contact in nature and high school aged students are far more likely to undergo ACL reconstruction than college aged students. These injuries can be attributed to planting and cutting, straight-knee landing, and one-step stop landing with the knee hyperextended [3]. Pivoting and sudden deceleration are also common mechanisms of non-contact ACL injury[2,4]. Considering that basketball ranks second among the top eight recreational activities with the largest number of musculoskeletal injuries among children ages five to 14 years with the most common injury sites being the ankle, hand and knee[1] and that common causes of these injuries (running, jumping, quick stops, etc.) routinely occur on all gymnasium and non-gymnasium floors in athletic and non-athletic settings, it is vital that the flooring possesses the greatest number of safety characteristics while offering maximum versatility. Northern hard maple offers a proven track record performance and safety when used in competitive and multipurpose settings.

The Birmingham, Mich.-based Ducker Research Co. Inc., conducted a survey in 1998 (funded by the MFMA) of sports flooring owners who had maple and synthetic floors or who had replaced synthetic flooring with maple. This survey compared incidence of injuries that occurred on each sporting surface. The resulting data indicated that athletes were 70 percent more likely to sustain a floor-related injury on a synthetic floor than on a maple floor.

Durability

MFMA maple's life cycle cost is surprisingly less than that of synthetics. The issue of life cycle costing is a critical evaluation criterion for facility owners and managers. The Maple Flooring Manufacturers Association estimates that the cost of a maple floor compared to the costs of PVC and poured urethane floors are, on average 12 percent lower than the cost of PVC floors and 33 percent lower than poured urethane floors. Life cycle cost comparisons reflect original installed price plus manufacturer-recommended maintenance over a 30-year floor life:

Northern hard maple ....$0.89 / sq. ft. / year

PVC.................................$1.01 / sq. ft. / year

Poured urethane ....$1.42 / sq. ft. / year

(Typical life span for a 25/32" maple floor is 38 years, PVC and poured urethane products have typical life spans of 15-20 years.)

Strength

Maple floor systems vary in strength due to the thickness of the maple installed and the design of the subfloor system. Subfloor designs vary significantly among floor systems so MFMA strongly recommends consultation with an MFMA mill manufacturer prior to selecting a subfloor system in a multipurpose setting. The MFMA mill manufacturers can help you select a subfloor system that fits your needs or help you customize a subfloor system for unique requirements.

Ease of daily maintenance

Caring for a maple floor in a multipurpose setting requires only minor additional maintenance. Daily sweeping, dust mopping with a treated dust mop and cleaning up spills are all that is required to maintain the beauty of a multipurpose maple floor.

THINGS TO INVESTIGATE BEFORE WRITING THE SPECIFICATION:

Subfloor blocking

Subfloor blocking is typically needed in areas where the maple floor will be subject to heavy loads (bleachers, portable backstops, gym floor cover carts etc.). MFMA refers all inquiries concerning subfloor blocking requirements to the individual flooring system manufacturer and the specified equipment manufacturer. Variances in bleacher system design, portable backstops, loading, total weight and operation make uniform specifications for subfloor blocking impossible.

Things to Look for When Specifying Maple Floors in a Multipurpose Room

1. Specify a reputable hardwood sports flooring contractor with significant experience in projects of similar size and scope to yours.
2. Determine who will be using this floor.
3. Determine what activities will be performed on the surface.
4. Specify a subfloor system that matches the floor's designated primary activity.
5. Specify any changes to the specified subfloor system and the locations of those changes.
6. Specify pre-installation conditions of the room, including fully functioning HVAC, constant temperature and humidity, weather tightness.
7. Specify industry-recognized installation guidelines throughout process.
8. Specify following the same post installation maintenance procedures.

Proper coatings for mutlipurpose surfaces

The Maple Flooring Manufacturers Association has published specifications for gymnasium sealers and finishes for maple floors and lists products that conform to such specifications for the sole purpose of providing guidance to achieving the highest protection and most enduring beauty in wood floors. All of the finishes listed on the MFMA Athletic Flooring Sealer and Finish Specifications and Conformance List are tested for conditions normally associated with a multipurpose floor. Such tests include: Gloss, Color, Hardness, Abrasion Resistance, Stain Resistance and Alcohol, Beer and Coca-Cola® Resistance. When selecting a floor finish for a multipurpose floor, make sure that the product is MFMA Certified.

Surface protection

Floor covers are not always needed in multipurpose rooms but they offer an extra layer of protection and helps to keep your multipurpose maple floor looking its best. Several manufacturers produce gymnasium floor covers for that extra protection and they come in a range of styles and thicknesses. The differences among covers include thickness of the vinyl wear coating and the strength of the fabric core. When evaluating a cover for durability, remember that the more durable covers have thicker coatings. Covers with higher strength core fabric will resist more abuse and tearing.

Specifiying a maple sports flooring surface

There are three types of wood flooring that are considered MFMA products: Northern hard maple (Acer saccharum), American beech (Fagus grandifolia) and yellow birch (Betula alleghaniensis). These species of MFMA Products produced by MFMA manufacturers are available in three basic configurations: random-length strip, finger-jointed strip, and parquet. Each of these surface materials can be installed in a single direction, and parquet can be laid in patterns such as a checkerboard, chevron, etc. Here are basic descriptions of each type of flooring:

Random-Length Strip — Consists of individual pieces of flooring, typically $1^{1}/2$ inches or $2^{1}/4$ inches wide, with lengths between 9 inches and 8 feet. The most common thickness specified is $^{25}/32$ inches, but $^{33}/32$ inches thick random-length strip flooring is also available. This surface material is installed like a horizontal brick wall, with each piece being overlapped with adjacent pieces and fastened into the subfloor with cleats, staples or steel clips, depending on the subfloor chosen for the project.

Finger-Jointed Strip — A number of random-length strip segments joined together at the manufacturing plant to form a consistent length board typically $1^{1}/2$ inches or $2^{1}/4$ inches wide. The most common thickness specified is $^{25}/32$ inches, but $^{33}/32$ inches thick finger-jointed strip flooring is also available. This surface material is also installed like a horizontal brick wall, with each consistent-length board being overlapped with adjacent boards and fastened into the subfloor with cleats, staples or steel clips, depending on the subfloor chosen for the project.

Parquet — Hard maple parquet flooring is manufactured in square and rectangular panels in a variety of dimensions. Individual picket widths range from $^{7}/8$ inch to $1^{1}/8$ inches, and picket lengths range from $5^{1}/2$ inches to 12 inches. Minimum thickness of MFMA parquet flooring is $^{5}/16$ inch. Individual pickets are assembled into panels and either joined together by wire, mesh, or tape on the back of the panel, or paperface on the front (or surface) of the panel. Parquet flooring is typically installed directly to the concrete substrate using adhesive/mastic, or over subfloor systems that contain continuous subfloors (plywood or similar).

The use of 33/32 flooring

With recent advances in flooring system technology, many specification choices have been simplified. "Over-engineering" of wood flooring systems is quickly becoming a thing of the past. Years ago, architects and specifiers required this product to be used on many installations to ensure structural stability and to add years to the floor's life span. Over the past twenty years, MFMA manufacturers have invested heavily in the research of structural stability and performance issues for maple flooring applications. As a result, most of the integrated flooring systems produced today do not rely in large part on the surface maple for structural stability and system performance. Subfloor design is the key. MFMA statistics showed that less than one percent of replacement floors were necessitated by depleted wear surface on the existing floor. Simply stated, the specification and use of $^{33}/32$-inch thick maple flooring is in many cases a waste of a natural resource.

FACILITY MAINTENANCE:

Equipment maintenance

Check and clean wheels — Nylon, plastic and metal wheels on storage carts, bleacher wheels and portable backstops can cause scuffmarks and scratches. Cleaning wheels, removing rocks and other hard debris, and making sure that the wheels roll easily will minimize potential damage.

Annual maintenance

To preserve the beauty and life of your maple floor, the MFMA recommends that multipurpose surfaces receive periodic refinishings. MFMA typically recommends that facilities having heavy use receive a new coat of floor finish every year to maintain its beauty and to protect the floor. Facility use, abuse, and maintenance will ultimately determine the appropriate recoating schedule. A typical recoating requires abrading floor's surface and applying another coat of floor finish.

From time to time, even the most meticulously cared-for maple multipurpose floor should receive a complete resurfacing. Resurfacing restores the luster in an older maple surface, and assures long life and excellent performance. The frequency of complete resurfacing depends on numerous factors, but typically is performed about every eight to ten years. Typically, the installation sanding will remove a full 1/32 inch of maple thickness above the tongue. When a floor is completely resurfaced the sanding typically does not remove any more than 1/32 inch of thickness. The maple floor should be sanded with a minimum of three cuts using coarse, medium, and fine sandpapers. The first cut using coarse sandpaper removes the majority of the material in order to remove the scratches, dirt and stains that have accumulated since installation. The final two cuts do not remove as much material and should provide a smooth and even surface, free from scratches, drum stop marks or gouges.

Maintaining furniture

The type of furniture used in a facility should be carefully selected. Folding chairs and tables that are set up and taken down frequently can be a nightmare for any type of flooring in multipurpose spaces. Maintenance personnel should ensure that rubber caps are maintained and in place on all legs before use or the maple flooring can be scratched.

Daily maintenance

Follow MFMA recommendations in the *Caring For Your MFMA Maple Floor* pamphlet. Always keep your floor free of dust, dirt, abrasive particles, and debris. **NEVER USE WATER TO CLEAN YOUR FLOOR** and never use dust mops treated with silicone, wax, or acrylic-based products. Your floor finish manufacturer has dust mop treatments specifically designed for compatibility with the finish used on your maple floor.
Clean up spills when they happen.

SIX STEPS FOR PROPER DAILY MAINTENANCE:

1. Sweep the floor daily with a properly treated dust mop. If the floor is used heavily, sweep it up to three times per day.
2. Wipe up spills and any moisture on the floor.
3. Remove heel marks using an approved floor cleaner applied with a soft cloth or dusting mop. Contact your floor finish manufacturer for approved cleaning products.
4. Make sure the heating/ventilating/air conditioning system is functioning properly and set to maintain indoor relative humidities between 35% and 50% year round. In areas of consistently high or low outside humidity, a 15% fluctuation will not adversely affect the maple.
5. Inspect floor for tightening or shrinkage. Check for water leakage around doors and windows during wet weather. Remove debris from expansion voids.
6. Always protect the floor when moving heavy portable equipment or lifts. Ensure portable equipment does NOT have crowned wheels or wheels that include center ridges remaining from the molding process. These types of wheels can create very significant point loads.

Proper and preventative maintenance prevents problems

Daily maintenance of a multipurpose hardwood floor does more than keep up the appearance of the floor; it ensures that moisture-related problems are avoided whenever possible. Making certain that heat, air conditioning and humidity are set properly and that windows and doors are sealed against weather can reduce the impact of moisture on your floor. The use of appropriate equipment and cleaning agents also are essential to proper maintenance. The Maple Flooring Manufacturers Association has produced a bilingual (English and Spanish) video with instructions for proper maintenance.

NEVER *Do the Following to your MFMA maple Floor*

1. ***NEVER*** shut down the ventilating system in your facility for a prolonged period of time.
2. ***NEVER*** use household cleaning products or procedures. They can be harmful to the floor finish and to the wood. They may also leave floors sticky or slippery, and potentially harmful to people who walk on the floor. Your MFMA floor finish manufacturer will recommend the right cleaning and maintenance materials for your MFMA floor.
3. ***NEVER*** clean your MFMA floor using scrubbing machinery or power scrubbers that use water under any pressure. Water is your floor's worst enemy!
4. ***NEVER*** attempt to modify or repair your MFMA multipurpose floor without first consulting your MFMA contractor.

Sources

[1] U.S. Consumer Product Safety Commission
[2] Daniel DM, Stone ML, Dobson BE, et al: Fate of the ACL-injured patient: a prospective outcome study. Am J Sports Med 1994; 22(5):632-644
[3] Griffis ND, Nequist SW, et al: Injury prevention of the anterior cruciate ligament, abstracted, in American Orthopaedic Society for Sports Medicine: Meeting Abstracts, Symposia, and Instructional Courses. 15th Annual Meeting, Traverse City, MI, June 19-22, 1989
[4] Noyes FR, Mooar PA, Matthews DS, et al: The symptomatic anterior cruciate-deficient knee. J Bone Joint Surg (Am) 1983;65(2):154-174

CLICK FOR ADDITIONAL REQUIRED READING

The article continues at: http://www.maplefloor.org/literature/incofinjury.htm.

To receive AIA/CES credit, you are required to read this additional text. For a faxed copy of the material, contact Daniel Heney at MFMA, (847) 480-9138 or email mfma@maplefloor.org. The following quiz questions include information from this material.

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

LEARNING OBJECTIVES

- *Describe the various characteristics that make maple flooring an ideal multipurpose surface.*
- *Describe what is important to consider when writing a specification for a multipurpose floor.*
- *Describe what things you should NEVER do to a multipurpose maple floor.*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 320. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. What characteristics of Northern grown maple make it desirable to use as a multipurpose flooring surface?
  - **a.** Maple flooring is a flooring surface that is as hard as concrete.
  - **b.** Maple is the ideal choice due to its strength, durability and beauty.
  - **c.** Maple flooring can be stained an array of colors.
  - **d.** Maple is often used in bridge building.

2. Which is the best thickness to use, 25/32 inch or 33/32 inch?
  - **a.** 25/32 inch is better because it is more rigid than 33/32 inch.
  - **b.** 33/32 inch is better because it is thicker and will last for a longer time.
  - **c.** 25/32 inch flooring is better than 33/32 inch because of the advancement in design of subfloor systems.
  - **d.** 33/32 inch is better because it is more resilient than 25/32 inch.

3. How often should a maple floor be sanded?
  - **a.** Yearly
  - **b.** After the basketball season
  - **c.** Every three years
  - **d.** Typically every eight to ten years

4. Name two of the four things you should NEVER do to your maple floor.
  - **a.** Never shut down the ventilating system for a prolonged period of time.
  - **b.** Never clean your MFMA floor using scrubbing machinery or power scrubbers.
  - **c.** Never use the same floor finish twice.
  - **d.** Never leave the lights on for extended periods of time.

5. What are the three basic configurations of maple flooring?
  - **a.** Elongated Parquet, Finger-Length Strip and Maple Block.
  - **b.** Random-Length Strip, Finger-Jointed Strip and Parquet.
  - **c.** Finger-Jointed Parquet, Random-Length Strip and Maple Veneer.
  - **d.** Random-Finger Strip, Jointed-Length Strip and Parquet.

6. The versatility of maple flooring makes it ideal for?
  - **a.** Shot put practice
  - **b.** Athletic performance, dances, roller skating, etc.
  - **c.** Archery
  - **d.** Paintball

7. Which of the following injuries is NOT commonly attributed to the floor surface?
  - **a.** Ankle-related sprains and torn ligaments.
  - **b.** Knee-related sprains and torn ligaments.
  - **c.** Spiral fractures of the medial condyle of the humerus.
  - **d.** Shin Splints.

8. What should you inspect a maple floor for on a daily basis?
  - **a.** Termites
  - **b.** Tightening or shrinkage
  - **c.** Bubbles
  - **d.** Carpenter bees

9. Where does the sport of basketball rank among the top eight recreational activities with the largest number of musculoskeletal injuries?
  - **a.** 8th
  - **b.** 5th
  - **c.** 1st
  - **d.** 2nd

10. Floor finishing products listed on the *MFMA Athletic Flooring and Sealer Specifications and Conformance List* are tested for resistance to what?
  - **a.** Yogurt, fruit juice and ketchup
  - **b.** Alcohol, beer and Pepsi®
  - **c.** Grain alcohol, beer and Sprite®
  - **d.** Alcohol, beer and Coca-Cola®

About MFMA

Established in 1897, the Maple Flooring Manufacturers Association is a trade organization representing the maple flooring industry. The MFMA is the authoritative source of technical and general information about maple flooring and related sports flooring systems. Its membership consists of manufacturers, installation contractors, distributors and allied product manufacturers who subscribe to established quality guidelines.

Through cooperative member programs, MFMA establishes product quality, performance and installation guidelines; educates end users about safety, performance and maintenance issues; and promotes the use of maple flooring products worldwide. Please call 847/480-9138, or write: MFMA, 60 Revere Drive, Suite 500, Northbrook, IL 60062. www.maplefloor.org. E-mail: mfma@maplefloor.org.

60 Revere Drive
Suite 500
Northbrook, IL 60062
mfma@maplefloor.org
www.maplefloor.org

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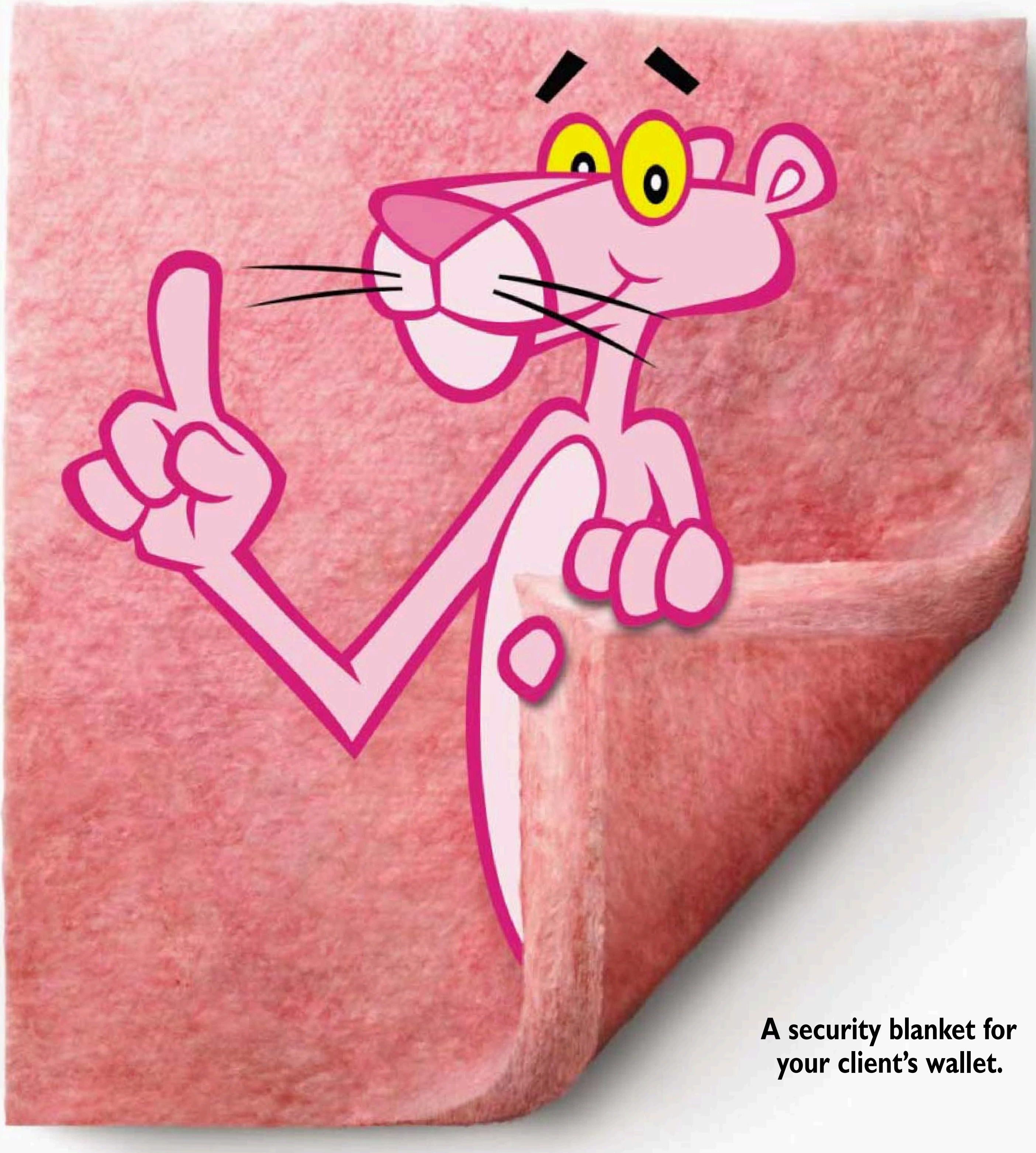

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Insulation earns high scores in green projects

The easy part of environmental stewardship

Leading edge environmentally sensitive building projects today often incorporate special equipment to recycle water and heat, capture solar energy and manage the climate throughout the structure. But there is one familiar category that deserves early attention in every green design project — building insulation.

Although insulation products have been around for many years and we tend to take them for granted, they have many things going for them in today's green projects.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Insulation earns high scores in green projects.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 261, then follow the reporting instructions on page 320 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Explain how adding insulation is an easy way to meet green requirements and is a good investment for clients.*
- *Understand how going beyond ASHRAE 90.1 can earn LEED points.*
- *Determine how R-value indicates insulating properties*
- *Recognize the value of third-party certification in verifying manufacturers' claims*

Why insulation is good for green projects

Saves natural resources — The basic idea of thermal insulation, of course, is to resist the movement of heat and cold. In addition to making interior spaces more comfortable, insulation saves energy, a precious natural resource.

It takes energy to make insulation but the Alliance to Save Energy estimates that a typical pound of insulation saves 12 times the amount of energy needed to make it during the very first year of use.[1] That means the energy consumed during manufacturing is saved during the first several weeks of the product's use and the energy savings continues every month throughout the life of the structure in which it is installed. The more buildings use insulation – and the more insulation is used — the greater the savings.

Uses recycled materials — The category of insulation now includes products made from old newspapers and denim jeans, but even the most widely available and commonly used insulation products have substantial amounts of recycled content. Fiberglass insulation, for example, has up to 40 percent recycled glass content including both pre- and post-consumer waste.

Extruded polystyrene foam insulation — commonly used for roof and exterior insulation, sheathing, and foundation perimeter and cavity wall insulation — can have up to 20 percent recycled content. Manufacturers' claims for recycled content are backed up by Scientific Certification Systems, a leading, independent, third-party certifier of product attributes.

Meets emission standards — The indoor air quality concern for most green building projects is the potential release of Volatile Organic Compound (VOC) emissions. Acceptable threshold levels of VOCs have been established and many product manufacturers are submitting their materials to meet third-party certification guidelines.

Formaldehyde is one VOC getting attention through marketing claims and in the media. The compound is used to manufacture a wide variety of building materials and household products, and it is ubiquitous in the natural environment. Common sources of formaldehyde in the home include pressed wood products, carpeting, cigarette smoke and fuel-burning appliances, and it is used in personal clothing and household cleaners. Within standard fiberglass insulation,

[1] *Green & Competitive, Alliance To Save Energy*

the amount of formaldehyde is only a trace amount – less than 0.1 percent. At that low level, and because fiberglass insulation is oven cured during the manufacturing process, out-gassing of formaldehyde is so low that the Consumer Product Safety Commission (CPSC) and the EPA do not consider fiberglass insulation to be a significant source of formaldehyde in the home.

Reduces pollution — Two recent Harvard studies showed that upgrading insulation levels could result in fewer deaths and reduced instances of respiratory ailments and other diseases associated with air pollution.

The study showed that with every BTU of energy produced, harmful gases such as nitrous oxide (NOx) and sulfur oxide (SOx) are released into the air, causing pollution in our communities. A well-insulated home or commercial building reduces the amount of energy required to maintain a comfortable living or working environment. Reducing energy consumption means power plants burn less fossil fuel to produce the energy and the result is a reduction in polluting gases emitted into our communities. Each BTU saved through energy efficiency means cleaner air to breathe.

Saves money — A very important factor for most building owners is the opportunity to save money with insulation. Yes, adding insulation above minimum levels required by energy codes can add to the cost of building the structure, but the higher thermal performance will go on saving operating expenses throughout the life of the building. Ignoring the fact that energy costs are on the rise in recent years and focusing simply on saving pennies on the front end of a project can set the stage for wasting many dollars in higher utility bills down the road.

The U.S. Department of Energy (DOE) and some insulation manufacturers have developed software that can help you compare the thermal performance and cost effectiveness of various energy conservation options in both residential and commercial projects. You enter information about construction options and the programs calculate the energy savings along with measures of economic performance, i.e., life-cycle savings and simple payback.

Earns LEED credits — One of the most widely used benchmarks for assessing environmental performance of building projects is the LEED® rating tool developed by the U.S. Green Building Council (USGBC). LEED, an acronym for Leadership in Energy and Environmental Design, is a voluntary, consensus-based standard for developing high-performance, sustainable buildings. It was developed by USBGC members representing all segments of the industry.

Within LEED there are six categories where building projects can earn credits toward one of the four ranking levels of LEED certification. Four of those six categories can be impacted by insulation products. Perhaps the easiest way to earn LEED points is to go beyond the insulation requirements of ASHRAE 90.1, which is referenced by LEED as the baseline energy efficiency standard for commercial buildings.

Understanding LEED

A little more than 10 years ago the acronym LEED didn't exist. Now it seems to be on everyone's lips as consumers and building occupants demand high levels of environmental performance in new construction, and architects and building designers become aware of the LEED rating system as a meaningful way to satisfy the desire for environmentally friendly projects.

LEED traces its roots to 1993 when several building materials companies got together and formed a membership organization they named U.S. Green Building Council (USGBC). The sole purpose of that new organization was to promote environmentally responsible building designs.

One of the first things USGBC did to promote green and sustainable buildings was develop a comprehensive set of green programs and rating tools under the umbrella title Leadership in Energy and Environmental Design (LEED). There are several LEED rating tools focusing on different segments of the building market (residential, commercial, interior design and existing buildings), but LEED for New Construction and Major Renovations (LEED-NC) is the only tool presently offered by the USGBC and in widespread use. Other LEED rating tools are in draft or pilot form.

It is important to note before proceeding that LEED **does not** "certify" products and LEED does not require product "certification" information for product or material submittal verification. It is also important to understand that LEED does not single out one particular product type when assessing points within each environmental category. Instead, LEED rating tools consider the overall impact of all materials used. In short, LEED is a tool for rating the overall energy performance of a project, not a product.

LEED is a voluntary, consensus-based, market-driven building rating system that is based on accepted energy and environmental principles and strikes a balance between established practices and emerging concepts. It evaluates environmental performance from a whole-building perspective, providing a standard for what constitutes a "green building."

There are four ranking levels of LEED certification.

CERTIFICATION LEVELS	POINTS
LEED CERTIFIED	26-32
SILVER	33-38
GOLD	39-51
PLATINUM	52+

Within LEED there are six categories where various points can be attained for aspects of the building project:

- ***Sustainable Sites***
- ***Water Efficiency***
- ***Energy & Atmosphere***
- ***Materials & Resources***
- ***Indoor Environmental Quality***
- ***Innovation & Design Process***

Within each category are individual point credits and some categories and/or individual point credits have prerequisite requirements that must be met before points can be earned for the specific category or individual credit.

It is not necessary to accumulate points in every item under each category in order to amass sufficient total points to meet one of the ranking levels of LEED certification. Many of the individual point categories within LEED are structured such that a given point is based on the dollars expended in the project for each material and weight-averaged across the aggregate of all materials. So what is important is that when taken together the aggregate meets the individual point criteria within LEED. Within this structure the project team has the freedom to choose materials that have strong performance qualities **and** are low cost **and** available to meet different uses — not just products with high environmental attributes.

Following are the primary LEED credit criteria affecting insulation materials:

Energy & Atmosphere — *Optimize Energy Performance*: Points within this category range from 2 to 10 depending on the percent reduction in energy use. To earn LEED rating points, a project must exceed the minimum level of energy efficiency for the base building and systems. The starting point for the project is ASHRAE/IESNA Standard 90.1–1999 (without amendments) or the local energy code, whichever is more stringent.

The next step is to design the building envelope and systems to maximize energy performance. LEED suggests using a computer simulation model to assess the energy performance and identify the most cost-effective energy efficiency measures. In your submittal for the project, you are asked to quantify energy performance compared to the projected energy cost budget for the baseline building. You must demonstrate the comparison using the Energy Cost Budget Method described in Section 11 of the Standard.

LEED project rating points are based on the percent of energy cost reduction.

NEW BUILDINGS	EXISTING BUILDINGS	POINTS
15%	5%	1
20%	10%	2
25%	15%	3
30%	20%	4
35%	25%	5
40%	30%	6
45%	35%	7
50%	40%	8
55%	45%	9
60%	50%	10

To earn LEED points you are required to complete the LEED Letter Template incorporating a quantitative summary table showing the energy saving strategies incorporated in the building design. You are also asked to demonstrate via a summary printout from energy simulation software that the design energy cost is less than the energy cost budget as defined in the ASHRAE/IESNA Standard.

Energy & Atmosphere — *Elimination of HCFCs & Halon*: The intent of this section is to reduce ozone depletion and support early compliance with the Montreal Protocol for phasing out the use of carbon-based refrigerants.

Projects can earn one point by installing base building level HVAC and refrigerant equipment, fire suppression and other systems that do not contain HCFCs or Halon.

This credit category is also being used to define the use of foam sheathing insulation, vinyl siding and other plastic-based products. The criterion does not prohibit the use of foam sheathing insulation, vinyl siding and other plastic-based products still using CFCs, HCFCs or Halon as there only needs to be documentation regarding how and when these carbon-based refrigerants will be phased out.

Materials & Resource — *Recycled Content*: Points in this category range from 1 to 2 depending on the amount of post-consumer or post-industrial recycled content of the product or products used.

The criteria for this category calls for a minimum of 25 percent of all materials used in the project to contain, in aggregate, a minimum weighted average of 20 percent post-consumer recycled content, or 40 percent post-industrial recycled content. The aggregate of all materials is based on calculating the total purchased dollars of each material.

Given this structure, it's not important that insulation per se be high in recycled content because insulation typically represents only about 1 percent of the dollars spent for all materials in the project.

To verify the recycled content of materials, LEED allows the use of the product database maintained by the California Integrated Waste Management Board (CIWMB) at *www.ciwmb.ca.gov/rcp*. The Website has a six-page list of 145 insulation products and reports the post-consumer content (PC) and total recycled-content (TC) for each product listed.

Materials & Resource — *Local/Regional Materials*: The intent of this category is to increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the regional economy and reducing the environmental impacts resulting from transportation.

Points in this category range from 1 to 2 depending on the amount of materials that are extracted and manufactured regionally within a radius of 500 miles of the project.

The category calls for a minimum of 20 percent of all materials used in the project to be manufactured (final assembly before shipment to the jobsite) within a 500 mile radius of the project. You can gain an extra point if 50 percent of the regionally manufactured materials are extracted, harvested or recovered within a 500-mile radius of the project.

To meet this criterion substantiating documentation must be provided describing distance and the dollar amount of each material used.

The good news in this category is that insulation — a bulky but light material — is generally not shipped great distances from where it is made. The business tends to be very regional with manufacturing facilities scattered throughout North America. On the other hand, insulation typically represents only about 1 percent of the dollars expended for all materials on a project so it is difficult to achieve the needed percentage of recycled content with such a low-cost product.

Materials & Resource — *Rapidly Renewable Materials*: This category allows 1 point if at least 5 percent of all materials used in the project are considered rapidly renewable.

Rapidly renewable resources are materials that substantially replenish themselves faster than traditional extraction demand. Like the previous category, it is not particularly important that insulation per se be considered rapidly renewable because insulation typically represents only a small portion of the dollars expended for all materials in the project. Nevertheless, the Environmental Protection Agency (EPA) has classified glass fiber and other types of insulation as rapidly renewable and, therefore, insulation can help meet this point criterion.

Choosing the right insulation products

Not long ago, the task of selecting insulation was relatively easy. For the most part, the job involved choosing among pink, yellow and white. In a twist on Henry Ford's infamous quote, "You can have any color you want as long as it is [fiberglass]."

Now there are many other insulation colors and products out there — such as gray cellulose, blue cotton denim and a variety of foam insulations — but the companies that produce all of those colors and products make the same claim: they are really green. And regardless of color, most of the insulation products are widely available.

Growing concern about the environment, however, has prompted consumers and architects to ask for environmentally friendly products. Some insulation manufacturers have responded by developing new products. Others have modified existing products. All of them are actively promoting the environmental qualities of their products.

So how does an architect decide which product to specify? Should you just pick a favorite color and hope it really is the "greenest" product available? That's one way, of course. Flipping a coin is another. But there are other ways of cutting through the verbal confusion and making a choice based on facts.

Third-Party Certification — One of the most basic things to check is whether an insulation product's environmental claims are backed up by an independent, third-party organization that has expertise and experience in evaluating such information.

An example of this is the GREENGUARD Environmental Institute^{SM} (GEI) certification and labeling program, which subjects building materials to rigorous tests for emissions of VOCs and other performance characteristics. GEI Certification for indoor air quality complies with criteria established by the U.S. Environmental Protection Agency (EPA), USGBC's LEED program and other notable organizations. Only low-emitting products that do not compromise the air quality of indoor environments are awarded GREENGUARD Certification^{SM}.

All manufacturers that have had their products certified by the GEI testing process put the GREENGUARD label in a prominent spot on their packaging. Information about certified products is also available at the GEI website: *www.greenguard.org*

Another third-party certification example is the Collaborative for High Performance Schools (CHPS, often pronounced "chips"), which aims to increase the energy efficiency of schools in California by marketing information, services and incentive programs directly to school districts and designers.

The Collaborative's goal is to facilitate the design of high performance schools: environments that are not only energy efficient, but also healthy, comfortable, well lit and contain the amenities needed for a quality education.

In May 2004, CHPS officially launched a low-emitting products database, which lists products that comply with California Special Environmental Requirements Specification (Section 1350). The Low-Emitting Materials Table is a free resource available on the Web to anyone.

The table can be found at: *http://www.chps.net/manual/lem_table.htm*.

Verifying Recycled Content — Claims for recycled content vary widely from about 25 percent up to 90 percent or more. That sounds good, but have the numbers been certified by an independent testing body?

One company specializing in such work is Scientific Certification Systems (SCS), established in 1984 as the nation's first third-party certifier for pesticide residue in fresh produce. Since then the company has become a certifier of multiple facets of the food industry, forest management, marine habitats and manufacturing-related businesses.

The company's environmental division certifies claims related to environmental achievement in product manufacturing such as recycled content and biodegradability. If you can't find SCS certification in the product's literature or on its packaging, you can check the list of certified products on the SCS website: *www.scscertified.com*

Recycle-ability – It should also be pointed out here that some insulation products themselves are recyclable. For example, extruded polystyrene foam insulation used in protected roof membrane assemblies can be picked up and used again when the time comes to replace the roof membrane underneath the insulation.

A recent example of this took place at DFW Airport in Texas. When the time came to replace membranes in insulated and ballasted roofing assemblies on the terminal buildings, the airport's roof manager looked for insulation under the rock ballast already on the roofs. What he found was perfectly usable extruded polystyrene insulation made more than 17 years ago.

After sending insulation samples to a laboratory to verify R-value and compressive strength, the consultant designed the re-roofing projects to reuse as much of the existing insulation as possible. The roofing contractor was able to pick up and reuse nearly 90 percent of the old material, saving the airport thousands of dollars that would have been spent taking the old material to a landfill and replacing it with all new insulation. Labor for getting the old insulation off the roof and new material up there would have added thousands of dollars to the project.

There are also environmental benefits to consider — less material to the landfill and less fossil fuel consumed in raw materials and manufacturing the new insulation. During the past 17+ years, the insulation has saved countless amounts of coal, oil, gas and electricity from being consumed, and it also helped avoid the creation of greenhouse gas emissions in making and consuming the energy to heat and cool the terminals. The insulation is now back in place to go on saving energy for another 17 or more years.

Safety Testing — Another important point to check is whether the insulation has been tested to substantiate its claims of safety and performance. This point seems rather basic but in fact some insulation products have yet to be tested.

As expected, the most widely used insulation material — fiberglass — has undergone the most safety testing. During the past 50 years more than 600 reports and scientific articles have been published on the health aspects of fiberglass. Based on the weight of evidence and reviews by several major health organizations, there is widespread support for the claim that fiber glass insulation is safe to manufacture and use.

The performance testing of insulation referenced in building and energy codes is generally done following standards set by the American Society for Testing and Materials (ASTM). A few of the common tests for insulation performance are ASTM C518 for thermal performance, ASTM E970 for radiant flux fire safety, and ASTM E136 for non-combustibility.

Newer vs. Better — There is often a knee-jerk reaction to assume that traditional products are not as good as something new. In such cases traditional products are assumed by default to be not as innovative as the newer products. But buyers and specifiers need to look deeper. Just because a product is new or is making certain marketing claims doesn't mean it's the best option.

An example of this is the Capitol Area East End Complex in Sacramento, Calif., where a $392-million five-building construction project built the state's largest and greenest office complex to date.

Hearing about a new fiberglass insulation that is made without adding formaldehyde, architects chose it for the first phase of the project. The one local supplier of that product was awarded the installation contract. Later, the design/build contractor learned that his choices weren't so limited because standard fiberglass insulation easily met the environmental and emission requirements of the project — in fact standard fiberglass insulation exceeded the requirements. This project set very low indoor emission requirements for products, including insulation. When testing was done for traditional fiberglass insulation, independent laboratory tests showed only trace amounts of formaldehyde being detectable — at half the state requirement. The general contractor had several bidders vying for the next job and opted to use standard fiberglass insulation for the much-larger second phase of the complex. ■

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at:
archrecord.construction.com/resources/conteduc/archives/0411owens-1.asp

To receive AIA/CES credit, you are required to read this additional text. For a faxed copy of the material, call Owens Corning at 1-800-GET-PINK®. The following quiz questions include information from this material.

AIA/ARCHITECTURAL RECORD **CONTINUING EDUCATION** Series

LEARNING OBJECTIVES

- *Explain how adding insulation is an easy way to meet green requirements and is a good investment for clients.*
- *Understand how going beyond ASHRAE 90.1 can earn LEED points.*
- *Determine how R-value indicates insulating properties*
- *Recognize the value of third-party certification in verifying manufacturers' claims*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 320. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. Insulation is a good product for green projects because it:
   a. Conserves natural resources
   b. Is made with recycled content
   c. Emissions of VOCs are typically well below green project limits
   d. All of the above

2. The objective of LEED standards is to:
   a. Certify the environmental performance of products
   b. Require that manufacturers obtain certification for their products before they can be used in green projects
   c. Provide a tool for rating the overall energy performance of a project
   d. Determine which products in each category are best qualified for green projects

3. To earn LEED rating points for energy performance, a project must exceed the minimum level of efficiency for the base building and systems. The starting point for the project is:
   a. ASHRAE/IESNA Standard 90.1-1999 (without amendments)
   b. The local energy code
   c. LEED for New Construction and Major Renovations (LEED-NC)
   d. The more stringent of options "a" or "b"

4. To earn LEED points for optimizing energy performance, a project must:
   a. Exceed the minimum level of energy efficiency for the base building and systems
   b. Quantify energy performance compared to the projected energy cost budget for the baseline building
   c. Demonstrate the comparison using the Energy Cost Budget Method described in Section 11 of the Standard
   d. All of the above

5. To obtain a LEED point for using local or regional materials, a project must:
   a. Incorporate a minimum of 20 percent of all materials used in the project to be manufactured within a 500 mile radius of the project
   b. Incorporate a minimum of 10 percent of all materials used in the project to be manufactured within a 1,000 mile radius of the project
   c. Certify that 50 percent of the regionally manufactured materials are extracted, harvested or recovered within a 500 mile radius of the project
   d. a or c

6. What is the purpose of the GREENGUARD Environmental Institute certification and labeling program?
   a. Identify products that meet established energy conservation requirements for green and sustainable projects
   b. Certify low-emitting products that do not compromise the air quality of indoor environment
   c. Rate the relative environmental performance of all products within a building materials category
   d. All of the above

7. What does the R-value of a material indicate?
   a. Thermal conductivity
   b. Thermal conductance
   c. Thermal transmittance
   d. Thermal resistance

8. Which of the following products typically has the lowest emissions of formaldehyde?
   a. Pressed wood products
   b. Carpeting
   c. Household cleaners
   d. Fiberglass insulation

9. What is the highest level of LEED certification?
   a. Platinum
   b. Diamond
   c. AAA
   d. L1

10. To obtain LEED credits for the elimination of HCFCs & Halon, a project must use products that:
   a. Comply with the Montreal Protocol for eliminating carbon-based refrigerants
   b. Do not contain any HCFCs or Halon
   c. Use products that have documentation regarding how and when HCFCs and Halon refrigerants will be phased out
   d. Do not contain foam, vinyl and other plastic-based products

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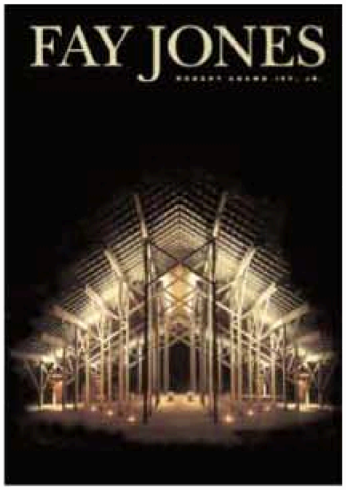

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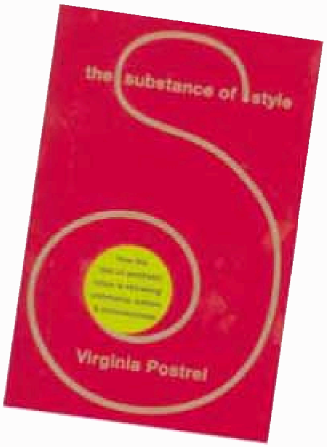
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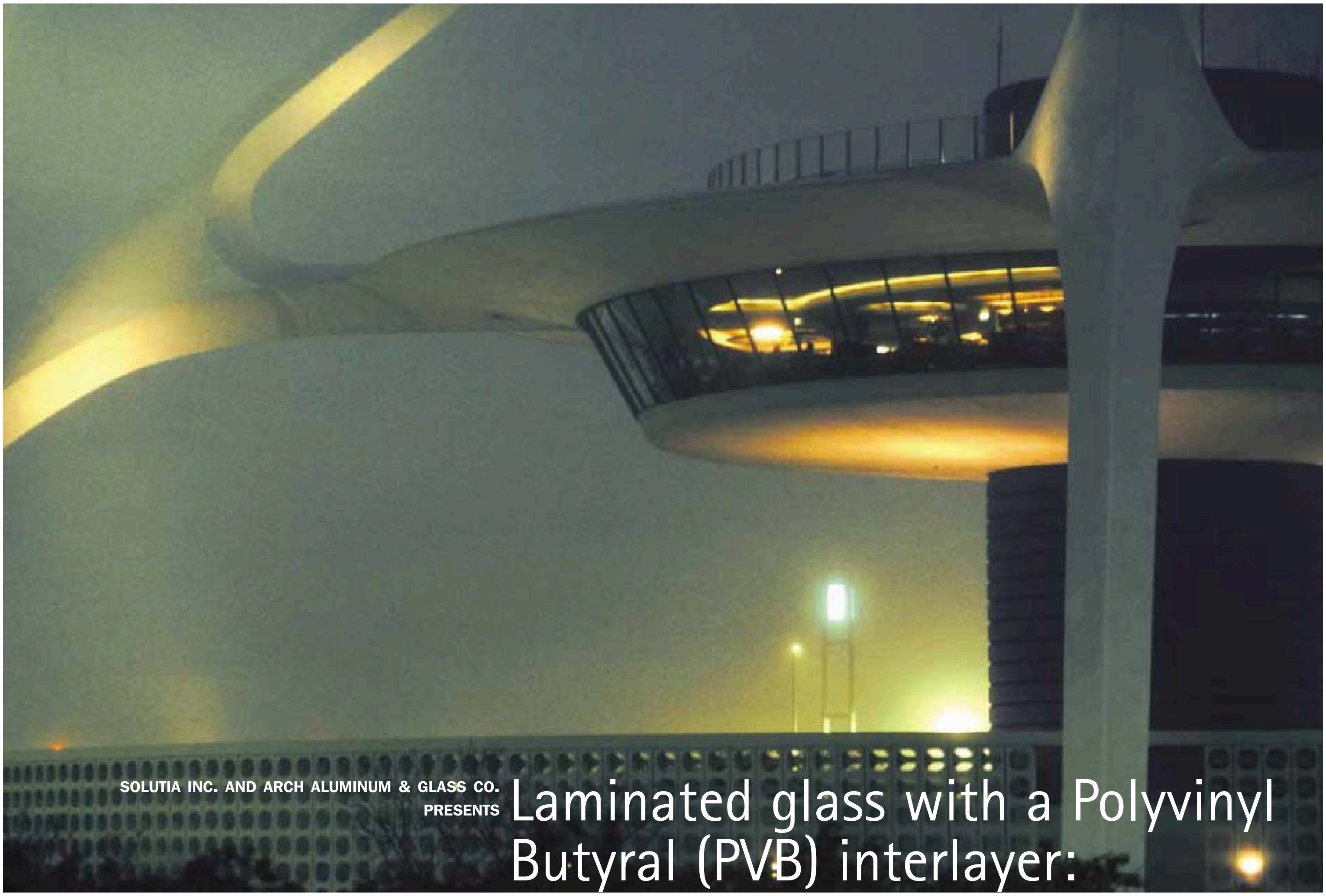


SOLUTIA INC. AND ARCH ALUMINUM & GLASS CO. PRESENTS

Laminated glass with a Polyvinyl Butyral (PVB) interlayer:

Keeping unwanted noise at bay

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Laminated glass with a polyvinyl butyral (PVB) interlayer: Keeping unwanted noise at bay.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 267, then follow the reporting instructions on page 321 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Understand how laminated glass with a polyvinyl butyral (PVB) interlayer can control unwanted environmental noise while providing the visually attractive characteristics sought by the architect, specifier and owner.*
- *Gain a better perspective on determining the necessary level of acoustical glazing.*
- *Identify the advantages and multi-functional benefits of laminated glass with a PVB interlayer.*

Sounds of the city

Rush hour traffic, airplanes overhead, construction equipment, blaring music — these are just some of the noises polluting U.S. cities. Unfortunately, noise is an unavoidable part of the daily environment, but it can be especially intrusive when it finds its way indoors. Transferred ground vibrations and sound transmitted through windows are the greatest contributors to noise in building spaces. Hence, improving the ability of windows to resist the passage of sound into building spaces is a high priority.

Exposure to excessive noise has been shown to cause hearing problems, stress, poor concentration, reductions in workplace productivity, communication difficulties, lack of sleep and a loss of psychological well being. At its most extreme, loud noise can even cause instant and permanent hearing loss.

According to the United States Environmental Protection Agency's Office of Noise Abatement and Control, "Noise constitutes a real and present danger to people's health and can produce serious physical and psychological stress."

Reducing unwanted noise is critical in commercial and residential settings. According to a 2001 study by Shomer and Associates of Champaign, Illinois, in the U.S. more than 40 percent of the population is exposed to transport levels exceeding 55 decibels (dB). And unlike most other environmental problems, noise pollution continues to grow.

Creating effective acoustic solutions

Because the perception of sounds can be as unique as the appearance of colors in a rainbow, it is important to understand the source of the particular noise to be attenuated prior to designing the acoustical solution. Sounds that are often the target of acoustical engineering include machinery, traffic (trucks and automobiles), trains (including urban rail systems) and aircraft. The differences in the

Noise pollution can originate in many ways, but increasing noise pollution is the result of growing populations; additional road, rail and air traffic; and greater industrial, neighborhood and recreational noise.

peak frequency of each of these sources of noise create unique requirements for their attenuation. Acoustical engineers have identified sound reduction targets for various sources of noise based on specific frequencies within a sound source. Different targets exist, for example, for diesel vs. non-diesel trains, heavy vs. medium trucks and even multiple noise sources. Glass laminated with polyvinyl butyral (PVB) interlayers is one of the most effective ways to reduce noise in all these situations because PVB reduces sound transmission through the glazing across a range of frequencies.

Sound transmission loss

Just as glass lets in light, windows can also transmit noise and they need to have damping added in order to provide sound control. A building material's resistance to the transmission of sound is known as the transmission loss (TL) and is expressed at a given frequency in decibel (dB or dBA) units. Transmission loss of a glazing material is typically measured between 80 and 5,000 hertz (Hz) in one-third frequency bands. The material's ability to minimize the passage of sound is quantified and reported as sound transmission loss (STL) at each defined frequency.

The STL of a material is measured by sending a known amount of frequency specific sound from one room (source room) through a wall-mounted specimen and recording how much of that sound gets through the other side (receiving room). The difference between the sound levels in the source room and the other room (the receiving room) is defined as the noise reduction (NR).

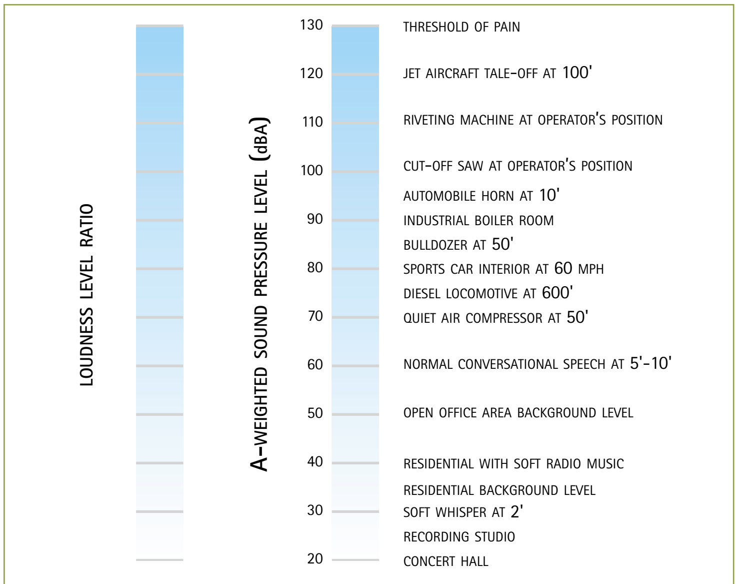
After obtaining the STL of the mounted panel the data is analyzed to determine the effectiveness of the material based on applications. For the most accurate reduction of noise, specific frequencies are reviewed to determine the level of sound reduction needed to dampen the offending noise. Because a thorough study of the surrounding noise can not always be obtained, it is common for the industry to use a single number rating system as a means of evaluating acoustical performance of materials.

For glazing, there are two methods of calculation used in the U.S. Sound transmission class (STC) uses the STL gathered in one-third octave bands from 125 – 4,000 Hz and a contour fitting principle to determine the single number rating. STC was designed to be used for sound transmission rating in interior compartments of buildings. Outside-Inside Transmission Class (OITC) is another single number rating that uses STL gathered from 80 – 4,000 Hz and a mathematical equation designed to depict human hearing to develop a single number rating. OITC was developed to assist in the determination of how much unwanted external noise will reach the inside of buildings. Although OITC is the better single number rating to use for outside noise penetration into a given facility, STC is more commonly referenced. It should be noted however that STC is weighted to "conversation" type noise and that certain frequencies of outside noise may not be damped to an acceptable level if sole reliance on STC is used during the acoustical design of a facility.

Sound transmission of a material is largely dependent on its mass, damping and stiffness, although in some cases size, temperature and edge anchoring can also alter the test data. Increasing glass thickness, and thereby increasing its mass, is one way to improve sound isolation performance. Augmenting glass stiffness or adding an insulating air layer between two plies of glass are other ways of improving sound insulation performance. The use of two lites of glass is generally effective only for an air space thickness larger than 0.5 inch (12.7 mm).

The remaining variable for improving sound transmission performance is glass damping. Damping is a mechanical property of a material or system, which quantifies the rate of dissipation of vibrancy energy into heat energy. For example, a bell has a low damping, and when a bell is struck, vibration persists or rings, resulting in sound that correspondingly persists. However, the ringing or vibration persistence can stop by holding the bell with one hand. This is a form of damping.

Generally glass has very low inherent damping and is usually only sufficient in reducing sound transmission loss within certain frequency ranges. By using laminated glass made with a polyvinyl butyral (PVB) interlayer, glass damping will increase and result in significant increase in STL. The damping increases attributed to glass through the use of a PVB interlayer could otherwise only be obtained through significant increases in glass thickness or increases in air spaces for insulating units. When laminated glass with a PVB interlayer is used in air spaced or insulting glass configurations, the benefits of damping are even greater.



LOUDNESS RATIO AND DECIBEL SCALE (dBA) FOR COMMON SOUNDS

The sensitivity of human hearing is restricted to the frequency range of 20 hertz (Hz) to 20,000 Hz. Human ears are most sensitive to sound in the 500 – 8,000 Hz range and become progressively less sensitive above and below this range. An increase or decrease in sound pressure level by 3 decibels (dB) or less is barely audible and an increase or decrease of 10 dB is perceived as doubling or halving of the noise level. It is the difference between a symphony concert (110 dB) and a rock concert (120 dB). Sound level meters measure acoustic signals by frequency and the sound pressure level at the designated frequency is weighted to correspond with the sensitivities of the human ear.

Acoustical glazing

Isolating interior building spaces from exterior sound is important if those spaces are to fulfill their intended purposes. An interior space that allows too much noise to be transmitted from outside may result in poor or inadequate conditions.

For example, a hotel located near a train station that has windows that do not sufficiently limit the amount of train noise in the guest rooms may fail to provide what hotel guests are looking for: a good night's sleep. Hotels are an obvious example; however most types of buildings (schools, office buildings, condominiums, etc.), and the people inside those buildings, can be adversely affected by high levels of environmental sound transmitted from outside.

When usual glazing configurations are not sufficient to limit the transmission of sound into building spaces, glazing configurations with enhanced sound transmission losses or acoustical glazing must be considered. There is no single definition for acoustical glazing, but most use a combination of a polyvinyl butyral (PVB) interlayer and an air space between multiple lites of glass.

Laminated glass made with a PVB interlayer is a highly effective way to reduce unwanted sound transmission even when used in a standard window design. It has been proven as a highly viable solution to the complex problem of retaining the integrity of a building's architectural design while simultaneously providing the most practical, effective form of sound control available in glazing systems.

Frame effects

Window frames serve an important role in the sound transmission loss of windows as they themselves can compromise the sound transmission loss. A sound transmission class (STC) rating, which is predominately used in the U.S., is a single number value quantifying the ability of a material to resist the transmission of sound. The higher the STC rating, the more able the material is to resist the transmission of sound. It is not uncommon to see window frames result in an STC rating that is 1 to 5 points less than the STC rating obtained for the glass alone. For example, a window outfitted with a glass configuration achieving an STC rating of 35, might as a total window assembly (frame and glass) only achieve an STC rating of 33 if frames or installation are deficient. Window manufacturers face the challenge of designing and building frames that maximize available sound transmission loss of glass configurations used.

There are no fixed guidelines for designed window frames that maximize sound transmission loss, but a few observations include:

- The lower the sound transmission loss of glass used in a window frame, the less likely that the window frames will compromise the window STC ratings.
- Windows with lightweight frames that use glass configurations with high sound transmission losses should be designed so the glass surface area is as large as possible, extending as far as possible between edges of building openings (i.e., extending as deeply as possible into window frames).
- Window frames that rely on glass position by means of blocking should make use of continuous blocks. Continuous blocks should also be used on sides and tops of windows.
- Window frames should have a surface weight as great as that of the glass. Often this is not the case, particularly in windows with acoustic glass.
- Packing large, hollow-tube sections of frames with loose, dense glass fiberfill has been noted to improve window sound transmission loss.
- Frames occasionally exhibit insufficient damping or ringing that manifests itself as a reduction in transmission loss (TL) of a particular frequency, generally less than 500 Hz. Although laminated glass with a polyvinyl butyral (PVB) interlayer can contribute to frame damping, direct application of damping compounds to window frame components can more efficiently increase frame damping.
- Always ensure adequate sealing of all glazing components and frame joints to eliminate sound leakage.

Many of these suggestions require testing to ascertain their benefit for a particular window frame. Others may require additional tooling or labor to implement properly.

Seeking to offset TL through enhancement of only glass would be inefficient and would likely be more expensive than implementing frame improvements. For example, the enhanced glass would still yield approximately the same STC if the air infiltration of the window is not rectified. A glazing that provides damping and a properly glazed frame system ensures the lowest levels of air infiltration, which is an acoustical window design fundamental.

Glazing selection

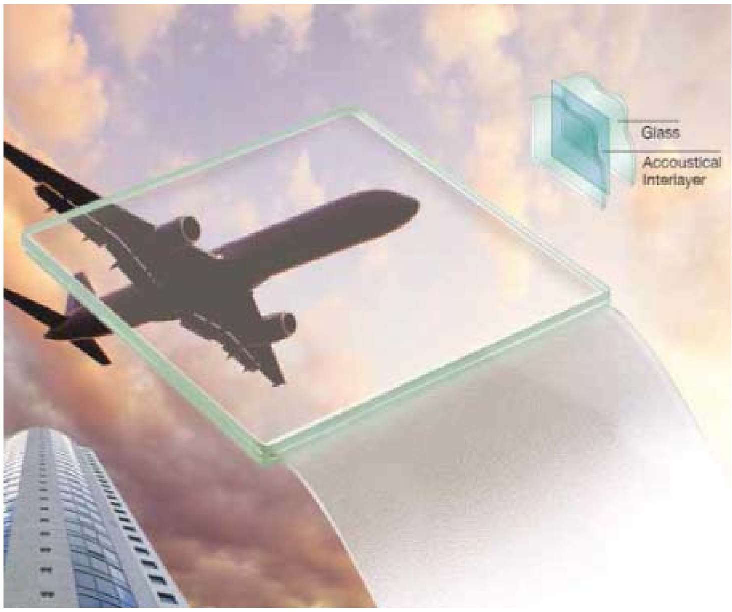
Whether single or double-glazing, the presence of one or two laminated components in a glass window or door can improve the acoustic performance of the glazing material by damping its resonance effects. In comparison, solid or monolithic glazing systems cannot as effectively control sound because of their reduced ability to screen certain frequencies of noises.

Monolithic glass (single thickness glass) has very low inherent damping because its transmission loss (TL) is affected by the mass of the glass and the bending frequency at various thicknesses. In order to get meaningful TL increases with monolithic glass, significant mass (thickness) must be added.

Typically the highest acoustical rating that can be achieved with a practically available monolithic lite is around 36 STC (12.7 mm [0.5 inch] glass). Double-glazed systems may offer an improvement over the monolithic systems, but the span of air space required to provide acceptable acoustical control introduces architectural design restraints as well as higher costs.

The installation of windows that provide an acceptable noise reduction involves first the assessment of the environmental noise and then the determination of the minimum acceptable window sound transmission class (STC) rating of weighted sound reduction index or Rw (the glass rating that is used in international and European standards).

Once a minimum sound reduction requirement has been determined, the next step is to use the information to arrive at an acceptable window glass configuration. This involves selecting or designing a glazing that has STC or Outside-Inside Transmission Class (OITC) values equal to or higher than the minimum required window performance level. The glazing selection would then be reviewed for other performance attributes such as safety, security, solar control, life cycle and aesthetics.



Laminated glass consists of a tough protective interlayer made of polyvinyl butyral (PVB) bonded together between two panes of glass under heat and pressure. Once sealed together, the glass "sandwich" acts as a single unit and looks like ordinary glass. Laminated glass made with a PVB interlayer is highly effective in reducing unwanted sound transmission and can be effectively used in standard window design.

Laminated glass with a polyvinyl butyral (PVB) interlayer provides a single unit system combining the density of glass with the sound absorbing characteristics of the PVB interlayer resulting in a single unit system that can provide the architect and specifier with a superior system for controlling unwanted sound.

For example, a 1/4-inch laminate (two lites of 1/8-inch glass bonded with 0.0300" PVB interlayer, nominal 1/4-inch overall thickness) has TL nearly equal the sound isolation provided by two pieces of glass 1/2-inch thick separated by 1/2-inch air space (1-inch overall thickness).

In addition to standard PVB formulations, an improved acoustical performing PVB layer is available for use in applications which require sound control properties beyond those attained with standard PVB. This PVB interlayer is particularly effective where installation dimension constraints do not allow for an increased glazing thickness that would otherwise be produced to achieve the necessary level of acoustical performance.

PVB interlayer damping is a very effective means for increasing sound isolation performance with a negligible increase in surface weight and total glass thickness. As with monolithic glass, the sound isolation performance of insulating glass can be increased significantly through the use of laminated glass.

Acoustical retrofitting

Often, acoustically deficient windows of an existing building are replaced with those that provide the necessary sound isolation performance. Other times, it is desirable to maintain the existing windows and improve their sound isolation performance by installing an acoustical sash.

In cases where additional window sound isolation is required and window replacement is not feasible, an acoustical sash can be a practical, cost-effective solution. An acoustical sash requires laminated glass. It must be well sealed and must be generously spaced away from the prime window glass. These installation requirements are usually more easily satisfied inside the prime window. For example, when the frame is glazed with 1/4-inch (6mm) laminated glass with a polyvinyl butyral (PVB) interlayer, increases in the sound transmission class (STC) rating up to 15 points can be obtained. This is a remarkable increase resulting in up to a quartering in perceived loudness.

Conclusion

There are many demands put on those responsible for architectural design and structural performance of buildings. Protecting tenants and users from the increasing noise levels of today's environment is a critical factor in the specification of glazing materials for new and/or renovated buildings. This is especially true today at a time when modern design trends emphasize generous use of glazing, and building owners require the highest level of comfort.

Laminated glass made with a polyvinyl butyral (PVB) interlayer can reduce perceived noise by as much as 50 percent over monolithic glazing systems, and laminated glass with a PVB interlayer can be used in any project where structural performance and a high level of sound reduction are required. Airports and surrounding structures, hotels, sports stadiums, recording studios, train stations, educational facilities and high rises are just some of the projects where use of laminated glass with a PVB interlayer can be specified. ■

All quiet at Carlson Restaurants Worldwide

Project: Carlson Restaurants Worldwide Corporate Office, Carrollton, Texas
Glazing Contractor: Country Glass & Mirror, Mesquite, Texas
Fabricator: Arch Aluminum & Glass Co., Waukesha, Wisconsin and Dallas, Texas
Interlayer Manufacturer: Solutia Inc., St. Louis, Missouri
Architect: Omniplan Architects, Dallas, Texas

Carlson Restaurants Worldwide Inc., a global restaurant company specializing in casual and sophisticated dining segments, operates franchises in 746 restaurants in over 50 countries. Company restaurants include familiar names such as: T.G.I. Friday's, Friday's Front Row Sports Grill, Friday's American Bar, Timpano Italian Chophouse, Samba Room and Pick Up Stix.

Carlson's new 130,000-square-foot corporate office building, located just steps away from active railroad tracks, sees train traffic throughout the day. To reduce the intrusive blare of the trains passing by, the building's owners wanted to install high sound control glass in several offices including that of the CEO, the boardroom and other offices located near the train tracks. "The din of the trains is extremely disruptive and could have had a negative impact on workplace productivity," notes Jack Wickstrom, Dallas sales manager for Arch Aluminum & Glass Co.

To achieve an STC rating of 45 in the CEO's office and boardroom and an STC rating of 42 for the other offices closest to the train tracks, the architects chose laminated glass with a PVB interlayer. "The sound isolation resulting from the acoustical glazing was remarkable," says Wickstrom. "The occupants of the building can now go about their workday without being disturbed by the racket of the trains clamoring by."

The following glass configurations were used to achieve the optimal noise reduction for the Carlson Restaurants building:

Glazing One: 1 3/16" overall insulated thickness to achieve an STC of 45:

Outboard Lite:	1/4" Optigrey Tempered Glass
	0.060" Clear Arch Sound Zone Plus PVB
	1/8" Clear Annealed Glass
Airspace:	1/2"
Inboard Lite:	1/8" Clear Annealed Glass
	0.030" Clear Arch Sound Zone Plus PVB
	1/8" Clear Annealed Glass

Glazing Two: 1 1/8" overall insulated thickness to achieve an STC of 42:

Outboard Lite:	1/4" Optigrey Tempered Glass
Airspace:	1/2"
Inboard Lite:	1/8" Clear Annealed Glass
	0.060" Clear Arch Sound Zone Plus PVB
	1/8" Clear Annealed Glass

The 130,000-square-foot Carlson Restaurants Worldwide office building is located just steps away from active train tracks The noise of the trains is virtually unheard by Carlson employees due to laminated glass windows with a PVB interlayer.

A train passes to the left of the tall grass which separates the train tracks from the corporate offices of Carlson Restaurants Worldwide.

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at: archrecord.construction.com/resources/conteduc/archives/0411solutia-1.asp

To receive AIA/CES credit, you are required to read this additional text. For a faxed copy of the material, 877-674-1233 or email glazin@solutia.com. The following quiz questions include information from this material.

AIA/ARCHITECTURAL RECORD **CONTINUING EDUCATION** Series

LEARNING OBJECTIVES

- *Understand how laminated glass with a polyvinyl butyral (PVB) interlayer can control unwanted environmental noise while providing the visually attractive characteristics sought by the architect, specifier and owner.*
- *Gain a better perspective on determining the necessary level of acoustical glazing.*
- *Identify the advantages and multi-functional benefits of laminated glass with a PVB interlayer.*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 321. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. Which of these problems can be caused by excessive noise (may be more than one correct answer)?
   a. Hearing problems
   b. Sleep loss
   c. Reduced productivity
   d. Increased stress levels

2. Which of the following are reasons for increased noise (may be more than one correct answer)?
   a. Growing populations
   b. Louder car horns
   c. More road, rail and air traffic
   d. More rock & roll radio stations

3. The human ear is most sensitive to sounds within which frequency range?
   a. 110 to 120 dB
   b. 500 to 8,000 Hz
   c. 20 to 20,000 Hz
   d. 3 to 10 db

4. Which of the following is not a factor in a material's sound transmission?
   a. Mass
   b. Opacity
   c. Stiffness
   d. Damping

5. The higher a material's sound transmission class (STC) rating, the better that material is at reducing sound transmission.
   a. True
   b. False

6. Laminated glass with a PVB interlayer has sound transmission loss (TL) nearly equal to monolithic glass roughly double its surface weight.
   a. True
   b. False

7. In addition to its sound control properties, laminated glass with a PVB interlayer offers benefits that include all of the following except:
   a. Increased visibility of objects located in the distance
   b. Prevention of flying glass in the event of an impact
   c. Protection in hurricanes, earthquakes and even bomb blasts
   d. Protection from harmful UV rays

8. Polyvinyl butyral (PVB) was first produced commercially in what year?
   a. 1903
   b. 1910
   c. 1938
   d. 1952

9. Which of the following are true in regard to the use of laminated glass in automobiles (may be more than one correct answer):
   a. Laminated glass with a PVB interlayer is commonly used in today's windshields
   b. Laminated glass is being used more and more in side, rear and roof windows of automobiles
   c. Laminated glass was first used in cars to reduce wind resistance
   d. Laminated glass can significantly reduce wind and traffic noise compared with standard tempered glass

10. The first step in selecting a window glass configuration for a project is to determine the necessary minimum sound reduction.
   a. True
   b. False

About Solutia Inc. and Arch Aluminum & Glass Co.

Solutia Inc. is a world leader in performance films, producing Saflex® and Vanceva™ brand polyvinyl butyral interlayers (PVB) for laminated glass in automotive, architectural and residential applications. Solutia is also a leader in process development and scale-up services for pharmaceutical fine chemicals; specialties such as water treatment chemicals, heat transfer fluids and aviation hydraulic fluid and an integrated family of nylon products including high-performance polymers and fibers.

Arch Aluminum & Glass Co., Inc., founded in 1978, is an American-owned, family business. It is a leader in the glass, mirror, laminated and architectural aluminum industries and operates 23 facilities in 16 states with over 1,600 employees.

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Solutia Inc.
Corporate Headquarters
575 Maryville Centre Drive
St. Louis, MO 63141
877-674-1233
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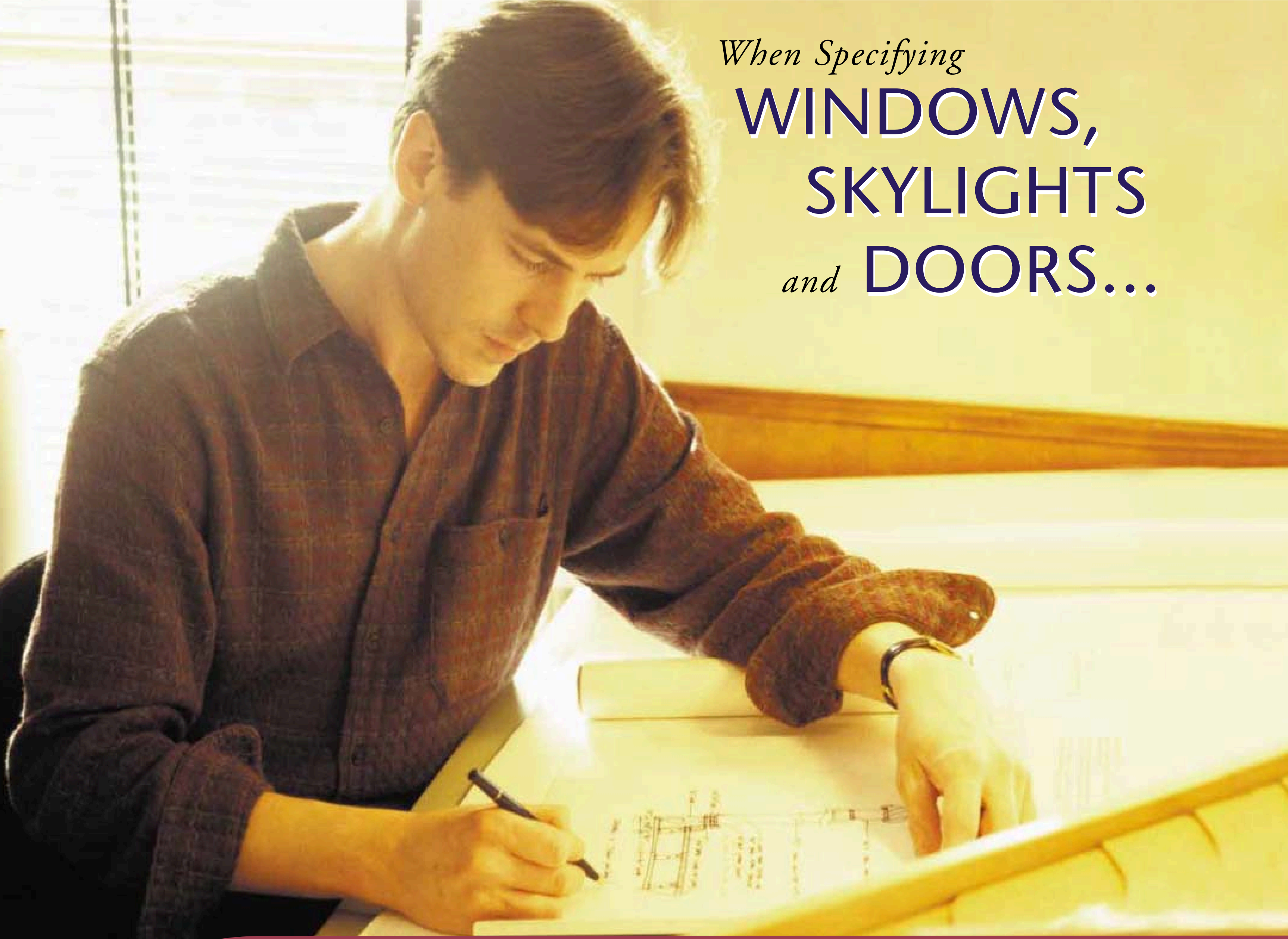

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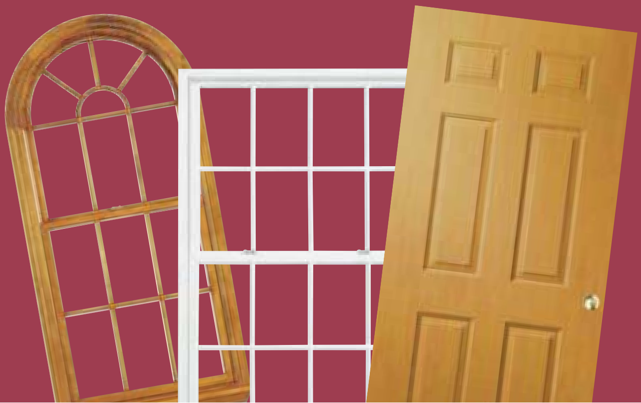


THE WINDOW & DOOR MANUFACTURERS ASSOCIATION PRESENTS

Performance override: Door specifications meet the “real world”

Wood flush doors have established themselves as the pinnacle of quality door manufacturing.
Source: Eggers Industries, Neenah, Wis.

Architectural wood flush doors are part of a superior interior built environment and now there’s an improved standard to guide their specification.

A major overhaul to an industry interior architectural door standard—I.S. 1A-2004 *Industry Specification for Architectural Wood Flush Doors*—is ready, and its focus is on performance-driven specifications. Application-driven construction performance standards are the wave of the future, and they’re here now for many different building products. For the door, window and skylight industry, performance standards focus on the built environment in which the product will be used and the move to performance standards versus prescriptive design specifications is an ongoing strategy. It’s a win-win for the architect and everyone else in the market that purchases and uses architectural wood flush doors, but especially, the end-user, who can rely on the product to serve the facility well over the long haul.

Exterior products have always been under close scrutiny by the architect, specifier, designer and end-user just because of their sheer nature. They’re visible and they play an important role in the overall efficiency and longevity of the building. Now, early in the construction pre-planning stages of a project, building products like interior architectural wood flush doors have also taken their rightful place as products that make a difference in the scope of the entire building project envelope.

In order for the architect to plan, design and specify commercial interior doors correctly, they need the proper tools. They need to know which door is right for the type of environment in which it will operate. It’s a simple fact of life that a door that is in a facility that experiences heavy use on a daily basis must be able to perform at a higher level than a door which has little or infrequent use. Within a facility, the use factor of interior doors will vary, depending on the location itself. That’s the real world and that’s how doors must be manufactured and specified as well and that’s what I.S. 1A does.

Application-driven specifications

It makes sense that interior architectural products, too, have been recognized in the push for performance and have stepped up to meet the rigors of both normal and extraordinary usage. This re-released standard for architectural doors emulates the importance of the built environment in which interior wood flush doors are used.

Published by the Window & Door Manufacturers Association (WDMA), Des Plaines, Ill., I.S. 1A-2004 *Industry Specification for Architectural Wood Flush Doors* is a major overhaul and rewrite of an existing industry interior

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Performance override: Door specifications meet the “real world.”** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 273, then follow the reporting instructions on page 321 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Understand the difference between performance vs. prescriptive design standards.*
- *Identify interior wood architectural door types based on where they are to perform within the facility.*
- *Become familiar with the new distinct performance levels or grades for these doors which are crucial in their overall specification.*

architectural door standard. This standard had in the past always been prescriptive in nature, but the latest revision transforms the document into a truly high-level performance-based document based on scientific criteria and testing.

For the first time, there are distinct performance levels or duties for these doors and anyone who specifies architectural doors must become familiar with the new categories in order to do justice to the product and to the facility. I.S. 1A provides a much-needed guideline for architects and specifiers who determine the nature of wood flush doors in commercial settings. More importantly, it's a reference guide they will use again and again in the scope of their designs.

For WDMA, the mission is to provide the necessary knowledge to install a superior fenestration product — and much of that drive comes from its standards and certification programs. WDMA as an organization has determined that key to the success of any standard is an emphasis on performance, and the recent release of I.S. 1A in early fall 2004 is a perfect example. With this standard, door construction may vary, as long as the specified duty (performance) level is met or exceeded, says David San Paolo, operations manager for The Maiman Co., Springfield, Mo., and a member of WDMA's I.S. 1A Task Group, the industry association committee which has worked intensively on revamping and targeting the standard.

At the core of the standard are the newly created Performance Duty Levels and Values, he says. "These requirements are based on engineering studies and not arbitrary numbers. The representative Performance Duty Levels and Values were reached using mathematical models and historical data collected in the course of the 35- to 40-year history of the industry," he says. And although they are minimum requirements, in many cases manufacturers may certainly exceed those initial parameters, San Paolo adds.

Performance vs. Prescriptive

The significance to the architect has to do with the performance emphasis, rather than a prescriptive design specification and here's the major difference. In the past, standards told manufacturers what materials and dimensions to use. I.S. 1A is flexible and recognizes innovation in materials and technology and gives manufacturers the ability to use different materials as long as they meet the performance criteria for compliance outlined by the standard.

Overall, the standard allows the architect and designer to specify the door for the end-goal or use for the owner of the facility, says Steve Hubert, inside sales manager for The Maiman Co. Hubert works with architects in the field to aid in their door specifications and also holds a degree in architecture. Hubert adds that there's a move in the design-build community to follow these types of standards, as they can streamline a job submittal by providing exact performance attributes rather than construction-material-mandates alone.

"This is an extremely significant document to the design specification community," says Brian Buckles, vice president of Manufacturing Operations, Algoma Hardwoods, Algoma, Wis., and vice chair of the I.S. 1A Task Force. "The architectural wood flush door is an important part of the building envelope. The standard allows the architect to tailor the type of door to the type of building. It will significantly improve the level of product specification available to the architect for the building," he says. "Now, with the WDMA standard, both aesthetic and performance aspects of the door can be specified. This change will allow the architect to relate a door's construction to anticipated frequency and severity of use in the building, helping to provide a better value and longer life cycle of flush wood doors to the owner as well," he adds.

Highlights of I.S. 1A

- Performance-based, rather than prescriptive
- Specific performance duty levels and values spelled out
- Revised species for veneer grading tables
- Positive-pressure fire door wording added
- Completely revised and expanded finishing section
- Installation specification checklist
- Aesthetics focus on appearance of faces and edges and performance, on functionality

In retrospect, I.S. 1A epitomizes WDMA's move to total performance-based standards wherever and whenever possible. "When products are manufactured to specific guidelines for their use in the field, everyone benefits from the outcome — including the buyer, specifier, architect, designer and consumer," comments Alan J. Campbell, CAE and president, WDMA. "The design professional can specify with confidence using I.S. 1A guidelines. Other new standards, such as the latest version of the North American Fenestration Standard, take this tack as well. In the end, the result will be a complete compendium of standards that may provide, ultimately, the perfect product for the job, because they are based on true-to-life application scenarios," Campbell says. WDMA wants to make the document an important reference point for the architect in his day-to-day specification duties.

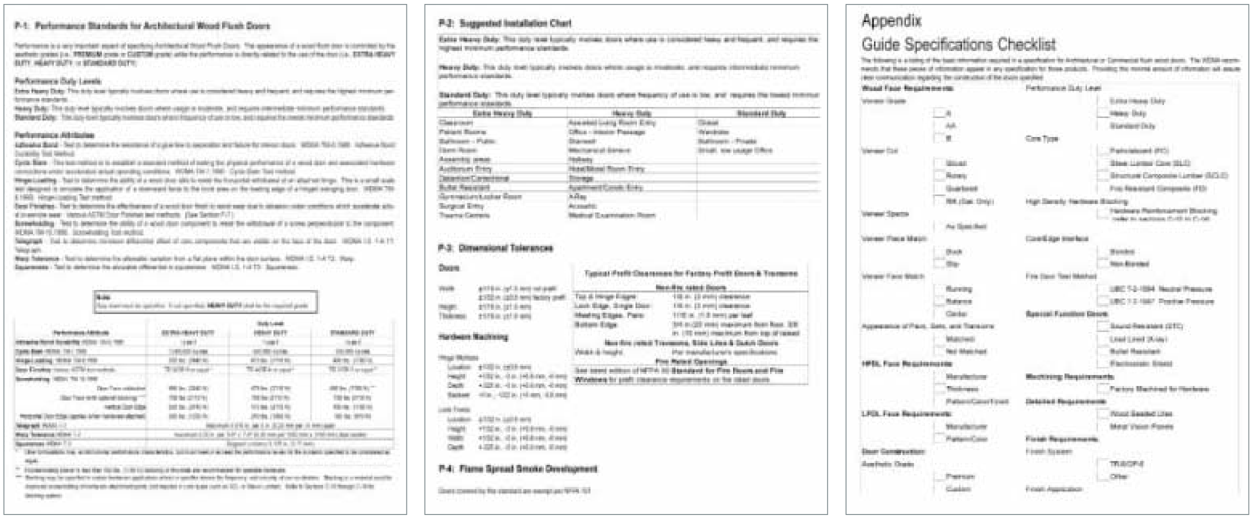
I.S. 1A is the culmination of intensive work by WDMA's I.S. 1A Task Force, an Industry User Group and many other individuals and organizations. For example, the task force worked with the Architectural Woodwork Institute (AWI), Reston, Va., to include input from that organization. In addition, the Hardwood Plywood and Veneer Association (HPVA), Reston, Va., created new face veneer charts that apply specifically to architectural and commercial wood flush doors. WDMA adopted these charts for use in I.S. 1A with permission from HPVA.

Performance, beauty and aesthetics characterize architectural wood flush doors. Source: Eggers Industries, Neenah, Wis.

Performance duty levels & values

Integral to I.S. 1A are "Performance Duty Levels and Values." Previous industry standards had dealt with Aesthetic Grades (Premium or Custom) while the new standard now adds Standard, Heavy Duty and Extra Heavy Duty guidelines. For example, Standard Duty involves doors used in smaller facilities where frequency of use is low. Heavy Duty typically represents doors in office buildings, etc., where use is intermediate or more frequent. Extra Heavy Duty cites doors used in industrial and institutional facilities, where use is heavy and frequent. If the Performance Duty Level is not specified, Heavy Duty shall be the required standard. (See related Suggested Installation Chart on these pages for details on the types of facilities covered under each Performance Duty Level.)

Extra Heavy Duty—This duty level typically involves doors used in industrial and institutional facilities. These facilities may be schools, hospitals, medical clinics or factory environments where use is considered heavy and frequent. This duty level requires the highest minimum performance standards.



From the WDMA I.S. 1A-04, Industry Standard for Architectural Wood Flush Doors. Left: pg. 23, Middle: pg. 24, Right: pg. 50

Heavy Duty—This duty level typically involves doors used in commercial environments. These projects include office buildings, hotels, churches and retail. This duty level requires intermediate minimum performance standards.

Standard Duty—This duty level typically involves doors used in smaller facilities where frequency of use is low. They may also apply to use in closet or wardrobe doors where use is infrequent. This duty level requires the lowest minimum performance standards.

Architects may reference Section P1 of the standard (page 23) for a complete description of Performance Duty Levels for Architectural Wood Flush Doors. Section P2 (page 24) displays the Suggested Installation Chart. Each door type page in Section C, Constructions, has a facing page with the aesthetic and performance duty levels for easy reference when specifying wood flush doors.

While the new performance section of the standard is the major focus, four additional species were added to the veneer grading tables, adapted from HPVA; positive-pressure fire door wording was added; the finishing section was completely revised and expanded; and a specification checklist was added (included within this article).

“The new I.S. 1A is a significant step forward in the evolution of this standard,” says Harry Reichwald, executive vice president and general manager of Eggers Industries, Two Rivers and Neenah, Wis. Reichwald chairs the WDMA I.S. 1A Task Group. “Prescriptive specifications have been replaced by performance values and duty levels. This achieves two objectives — the specifier can select the proper door for any given application and have confidence in its performance over time, and manufacturers have more freedom to utilize innovative materials and techniques for door construction as long as they meet the performance criteria. This is a true win-win for the industry,” he says.

I.S. 1A has many other significant changes which make it a cutting-edge standard, but some of the most critical within the document include the Performance Duty Levels and Values. The eight performance attributes (and appropriate test methods applicable) that classify a door and its construction into the various levels include:

- **Adhesive Bond (WDMA TM-6: Adhesive Bond Durability Test Method)** — Determines the performance of adhesive bonds in doors under accelerated aging conditions;
- **Cycle Slam (WDMA TM-7: Cycle-Slam Test Method)** — Determines the physical endurance of wood doors and associated hardware connections under accelerated actual operating conditions;
- **Hinge Loading (WDMA TM-8: Hinge-Loading Test Method)** — Determines the ability of a door stile to resist the horizontal withdraw of an attached hinge;
- **Door Finishes (Various ASTM Door Finishes test methods)** — Determines the effectiveness of door finishes to resist wear due to abrasion under conditions which accelerate actual in-service wear;
- **Screwholding (WDMA TM-10: Screwholding Test Method)** — Determines the ability of door components to resist the withdrawal of a screw perpendicular to the component;
- **Telegraphing (WDMA I.S. 1A T1: Telegraph)** — Determines minimum differential offset of core components that are visible on the face of the door;
- **Warp Tolerance (WDMA I.S. 1A T2: Warp)** — Determines the allowable variation from a flat plane within the door surface; and,
- **Squareness (WDMA I.S. 1A T3: Squareness)** — Determines the allowable differential in squareness.

Other significant standard highlights, in addition to Performance Duty Levels and Values include:

Updated Face Veneer Charts — The HPVA created new face veneer charts that apply specifically to architectural and commercial wood flush doors and WDMA adapted these charts for use in I.S.1A with their permission.

Factory Finishing — Each year, more doors are pre-finished at the factory as opposed to the construction jobsite. Improved appearance, durability, environmental compliance and quality control are a few of the advantages that factory finishing provides over jobsite finishing. The new I.S.1A has been updated to further explain the advantages and choices of finishing systems that are available, focusing on the types of finishing systems most often used for architectural and commercial wood doors.

Positive Pressure Fire Doors — Positive Pressure fire door test criteria continue to be adopted by states and municipalities across the U.S. To meet requirements, openings typically require an intumescent seal or gasket applied either to the frame or concealed within the door itself. Understanding positive

Left: Architectural wood flush doors are appropriately characterized in the standard according to use. Source: Eggers Industries, Neenah, Wis.
Right: Architectural wood flush doors are covered under a newly revised performance standard. Source: Algoma Hardwoods, Algoma, Wis.

pressure requirements and communicating them to the door manufacturer is crucial in meeting code requirements. I.S.1A explains the mechanics of positive pressure and uses a new door construction identifier (PP) to help clarify specification.

One of the most recent developments with regards to fire doors has been the changeover to positive pressure testing versus neutral testing methods. An issue literally years in discussion, this technical and scientific debate has subsided, and positive pressure is quickly becoming the standard method of testing required by major building code bodies coast to coast. Some 40 or so states (or major cities within those states) have adopted or soon will either adopt the Uniform Building Codes 7-2 1977 or the International Building Code 2000 or 2003. (See related story on these pages for key phrases used in determining the exact nature [positive or neutral pressure] of fire doors.)

Specification Checklist — Wood flush door guide specifications vary, but there are certain aspects that must be addressed to ensure that the doors meet the requirements of the specifier and building owner. I.S.1A includes a specification checklist, providing a reference to make sure all key points are addressed. (See the Guide Specifications Checklist included on these pages.)

The new WDMA I.S. 1A door standard also contains a totally updated prefinishing section that helps clarify the different types of finishing systems that are available and their performance characteristics. In the past, standards detailed 16 different systems most of which are not typically utilized in the finishing of architectural and commercial wood doors. While identifying all 16 systems, the new standard focuses on the three systems that are typically used in the industry. Those highlights include:

Factory Finishing — Most architectural and commercial wood doors are now specified to be pre-finished at the factory, prior to delivery at a jobsite. State-of-the-art equipment operated in controlled conditions result in the best possible appearance. The raw wood doors are prepared in automated sanding equipment, removing scuffs, scratches, and handling marks before the application of stain and clear top coats. Field finishing cannot duplicate the conditions and results.

Samples that represent the color, build, and sheen are supplied to a door manufacturer who matches the sample and submits it for approval to the specifier. Upon approval, the door manufacturer then applies the stains and finishes that duplicate the appearance of the sample submitted. The process of sample generation and approval typically takes five to 10 days.

Positive Pressure or Not?

I.S. 1A explains the mechanics of positive pressure and also includes important facts to consider when reading specifications. Doors may be either neutral or positive pressure, depending on local code. Using these key words as a guide, the architect may be able to determine whether or not a door is tested under positive pressure methods.

Key phrases indicating positive pressure:

- UBC 7-2-1997 UBC Fire Test
- IBC 2000 or IBC 2003 Code
- NFPA 5000 Code
- UL 10-C Fire Test
- ASTM 2074-00 Fire Test
- After 5 minutes into the test the neutral pressure plane should be at 40"
- Shall meet positive pressure requirements
- Intumescent seals — not telling you it is positive pressure by implying that it is.

Key phrases indicating negative (neutral) pressure:

- UL 10-B Fire Test
- UBC 7-2-1994 UBC Fire Test
- UBC 43-2 UBC Fire Test
- Tested at atmospheric pressure
- Neutral pressure
- Negative pressure
- ASTM E-152 Test Method

Phrases that don't tell you if it is positive or negative:

- NFPA 101 Life Safety Code
- NFPA 105 Smoke and Draft Control Document
- NFPA 252 Fire Test Method which gives the option to be positive or negative
- UBC With no date given could be either positive or negative
- UL 1784 Air Leakage Test for Door Assemblies
- NFPA 80 Installation Standard for fire doors and windows

Source: WDMA I.S. 1A, page 30.

Finish Systems — The system that is most often specified is a TR/OP 6 - Catalyzed Polyurethane which provides the highest performance properties of production finishes. The TR/OP6 finishes are normally roll coated with high solids, volatile organic compound (VOC) free material, and cured using ultraviolet (UV) light technology. This is opposed to older technology where a low solids, solvent (VOC) based material is sprayed. Other finishes that are sometimes specified are TR/OP - 2 Pre-Catalyzed Lacquer and a TR/OP 4 - Conversion Varnish. The performance properties of these finishes are below that of a TR/OP 6 but do provide an architectural/commercial finish. They are typically spray applied with solvent based materials.

A chart describes all three finish systems, specifically detailing how well each system resists a variety of chemicals and solutions, wears, and how well the finish adheres to the substrate and underlying coats of finishing material. Chemical descriptions may vary from those printed, but performance levels of a finish system must meet or exceed those printed to be considered equal.

The addition of Low Pressure Decorative Laminate doors and other faces, finishes species and materials reflects new product trends. Source: The Maiman Co., Springfield, Mo.

Low Pressure Decorative Laminates (LPDL) — LPDL has been added to the standard as an alternate face material. This material is a decorative laminate paper that has been saturated in reactive resins, and hot pressed to the face of the door, creating a hard crosslinked thermosetting permanent bond. Many colors and woodgrain patterns are available and the addition of LPDL reflects new product trends in the manufacturing community.

Visual inspection standards

Also new in I.S. 1A is a chart which describes what types of defects are not acceptable when the door is in the installed condition. A chart describes to what degree a number of manufacturing, finishing and touch-up marks are unacceptable and must be repaired.

The new edition of WDMA I.S.1A further includes updates and clarification of several aspects of the veneer specification charts. The specification charts identify the color and matching, natural characteristics, manufacturing characteristics, and special characteristics that are allowed in the different veneer species and grades. The significant highlights and changes to that section include:

Additional Species — Anegre, Beech, Makore, and Sapele have been added to the specification charts, as these species are becoming more popular among specifiers. These woods are readily available and provide some alternative and striking appearances.

"Natural" Veneers — Historically, the terminology of "natural" in primarily Birch, but also Ash, Maple, Beech and Poplar veneer has created considerable misunderstanding concerning the appearance of a door face. The term "natural" when attached to these species allows the presence of light colored sapwood and dark colored heartwood in any combination, resulting in a wide variation of light and dark veneer appearance within a door face, and from door to door. Other terminology such as "white" will allow only light colored sapwood in the door face and the term "red or brown" will allow only dark colored heartwood in the door face. Additional highlighted text and glossary definitions have been added to caution the user of the "natural" appearance.

Slope and Swing—In the past, only rift veneers listed slope and swing restrictions which were in place to maintain the straight grain appearance of these door faces. Now quartered veneers are subject to the restrictions as well. Previously, quartered veneers have been subject to the restrictions, but only by association. The restrictions themselves have not been changed. Grain slope is restricted to 1 inch (25.4 mm) in 12 inches (305 mm) maximum, and sweep is 2 $^{1}/_{2}$ inches (63.5 mm) in 12 inches (305 mm) maximum. ■

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at:
archrecord.construction.com/resources/conteduc/archives/0411wdma-1.asp

To receive AIA/CES credit, you are required to read this additional text. For a faxed copy of the material, contact Alan Campbell at WDMA, 847-299-5200 or email acampbell@wdma.com. The following quiz questions include information from this material.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION Series

LEARNING OBJECTIVES

- *Understand the difference between performance vs. prescriptive design standards.*
- *Identify interior wood architectural door types based on where they are to perform within the facility.*
- *Become familiar with the new distinct performance levels or grades for these doors which are crucial in their overall specification.*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 321. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. Which of the following best describes a product (in this case an architectural wood flush door) that is manufactured to a performance-based quality standard?
- **a.** One which focuses primarily on aesthetics and construction materials.
- **b.** One which looks at the built-environment.
- **c.** One which considers the built environment and the duty level of the door.

2. Which of the following statements might best describe I.S. 1A?
- **a.** A new standard for both interior and exterior architectural products.
- **b.** A new standard for interior architectural door specifications which focuses on the materials used in its construction.
- **c.** A revised and revamped standard which focuses on how the product is expected to perform in the field rather than how to prescriptively fabricate it.

3. What is the overall benefit of the standard to the architect, specifier and building owner?
- **a.** Provides rules and requirements for specifying architectural doors.
- **b.** Focuses entirely on grades and aesthetic appearances of interior products.
- **c.** Relates a door's construction to performance and frequency and severity of use.

4. With this standard, door construction may vary, as long as the specified duty level is met or exceeded.
- **a.** True
- **b.** False

5. Performance Duty Levels and Values in the standard are reflected by which of the following terms?
- **a.** Premium grade
- **b.** Custom grade
- **c.** Standard, heavy and extra heavy duty

6. Which of the following are included in the list of performance attributes which classify a door and its construction into the various Duty Levels:
- **a.** Adhesive bond durability, cycle slam and hinge-loading
- **b.** Door finishes
- **c.** Screwholding, telegraph, warp tolerance and squareness
- **d.** all of the above

7. The performance levels and values of architectural wood flush doors include:
- **a.** Aesthetic grades of Premium and Custom
- **b.** Standard Duty, Heavy Duty and Extra Heavy Duty
- **c.** Both a and b

8. Overall, the biggest change in the revised specification is:
- **a.** New tables and finishing charts
- **b.** The shift to performance from prescriptive
- **c.** A guide specification checklist and new species/materials added

9. Aesthetics have been completely removed from the standard.
- **a.** True
- **b.** False

10. In the updated finishing section, which of the following is true?
- **a.** Focuses on 16 different systems for finishing architectural wood flush doors.
- **b.** Identifies three systems typically used in the industry.
- **c.** Identifies 16 systems, but focuses on the three systems typically used in the industry.

About WDMA

The Window & Door Manufacturers Association (WDMA) is a trade association representing the leading U.S. and Canadian manufacturers and suppliers of windows and doors for the domestic and export markets (www.wdma.com). For further information, contact WDMA at: 1400 East Touhy Ave., Suite 470, Des Plaines, IL 60018; phone 847-299-5200; e-mail: admin@wdma.com.

WDMA
Window & Door Manufacturers Association

1400 East Touhy Ave.
Suite 470
Des Plaines, IL 60018
admin@wdma.com
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Lighting

An aquarium anchors a Berlin hotel, while natural history exhibits venture beyond black-box dioramas

BRIEFS

The Lighting Research Center at Rennselaer Polytechnic Institute has announced a three-day workshop surveying architectural applications with light-emitting diodes. The Troy, New York–based center will present the LED Lighting Institute on April 27–29, 2005. Participants will earn 20 continuing education credits. For information and registration, contact Dan Frering, 518/687-7149, or e-mail freid@rpi.edu.

Japan is supporting solar home lighting in Nepal, reports *Japan Today*. The Japanese government recently granted $43,000 for 252 sets of 14-watt solar panels and LED lamp accessories required to support residents of the remote village of Bhachok in Western Nepal.

The International Association of Lighting Designers is accepting submissions for its 22nd annual architectural lighting awards program until December 1. Go to www.iald.org, or call 312/527-3677 for information.

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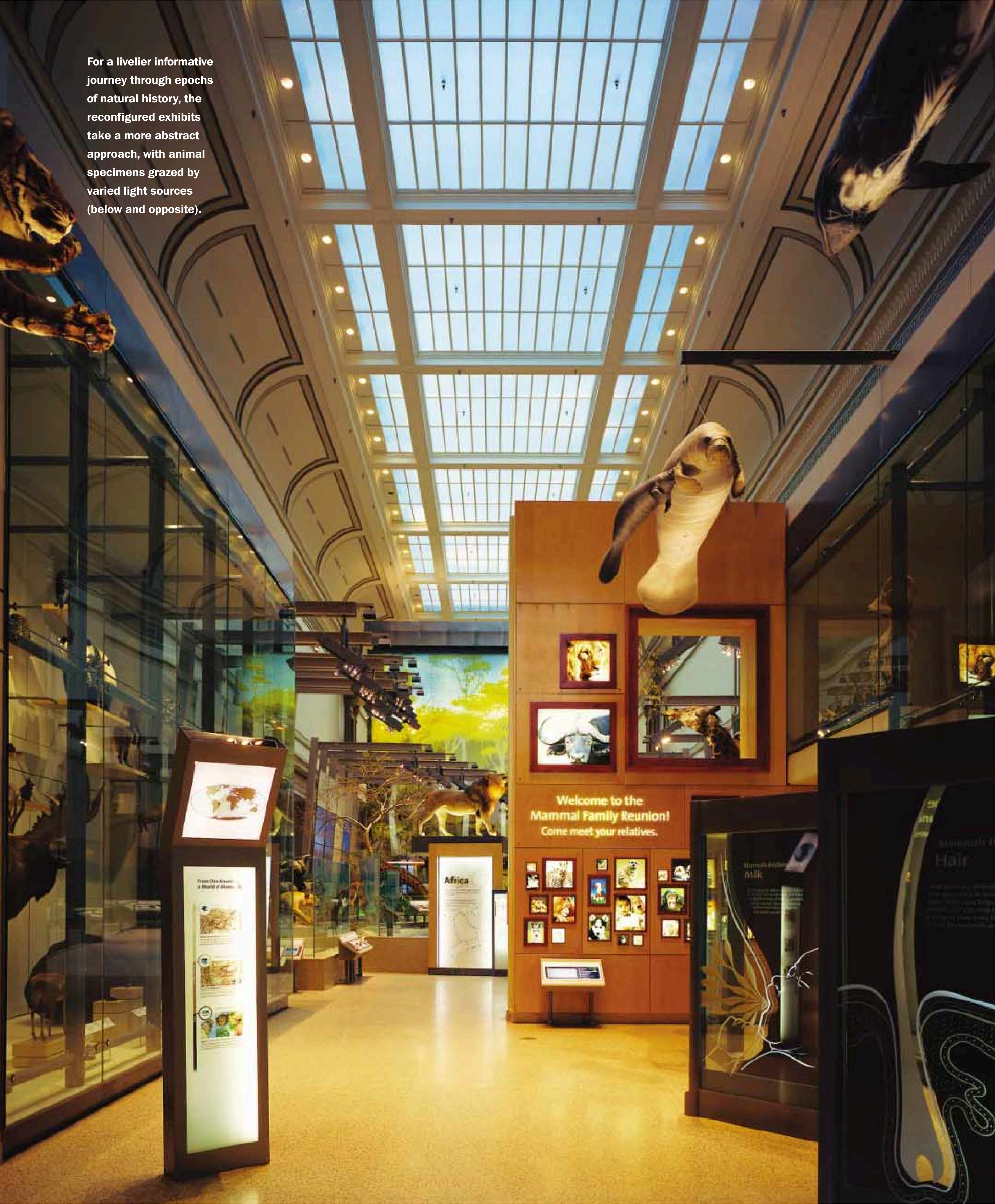
PHOTOGRAPHY: © KERUN IP

An eclectic trio of projects this month showcases dynamic architectural lighting supporting unexpected approaches to traditional building types: a hotel, natural history museum, and fitness center. Each project employs a variety of fixtures to emphasize changes in interior scale and perspective. Illumination also orients patrons and guides them through a progression of rooms.

A towering aquarium welcomes guests in the lobby of the Radisson SAS Hotel in Berlin. While such a set piece might have overwhelmed other architectural elements of the atrium, architect Virgile and Stone Associates plays off the eye-catching tank with a series of curved forms—a bar, a bronze wall divider—that spin out from the central tower like waves. Cold-cathode, halogen, and fiber-optic lighting brings the eye down to the human scale of these features in the vast space. In the hotel's restaurant and lounges, glass surfaces serve as canvases for a variety of lighting effects. Bernd Behrendt of Kuehn Bauer Partner and Volker von Kardorff were local lighting consultants enlisted to implement architect Carlos Virgile's creative vision.

The hall of mammals at the Smithsonian's National Museum of Natural History in Washington, D.C., is enjoying new life as a revamped attraction that engages patrons in a more interactive experience. With many animal specimens freed from the typical diorama format, patrons take a figurative walk through an African savannah, an Arctic tundra (photo right), a South American rain forest, and Australian grasslands. Suzanne Powadiuk helps take the exhibits beyond a static format, with layered lighting that sparks the imagination of patrons of all ages.

For the Equinox fitness center at the base of New York City's Time Warner Center, Platt Byard Dovell White collaborated with Cosentini Lighting Design to create a 40,000-square-foot facility two levels below grade. Architectural lighting varies the ambience in support of each exercising mode. The architects and project lighting designer Fernando Soler are at work designing additional Equinox locations across the country. The team has helped establish—and found a way to adapt—finish and fixture standards that can create an inviting sense of place, even underground. *William Weathersby, Jr.*



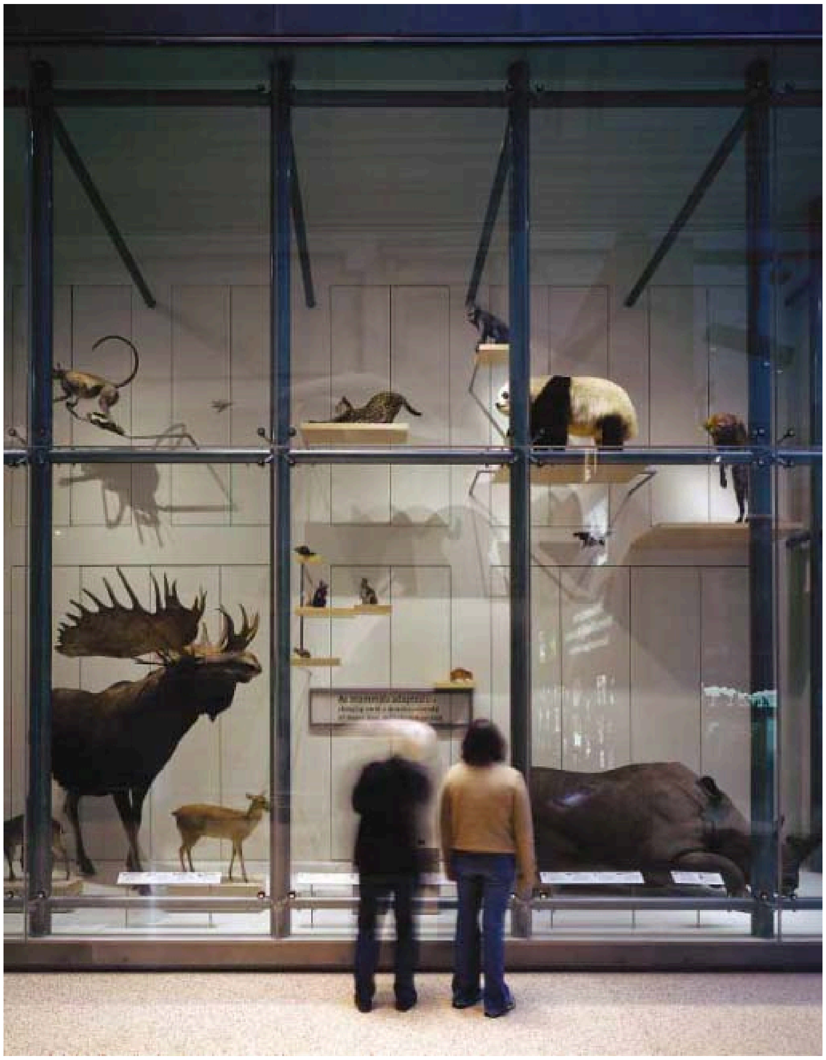
For a livelier informative journey through epochs of natural history, the reconfigured exhibits take a more abstract approach, with animal specimens grazed by varied light sources (below and opposite).

Welcome to the Mammal Family Reunion!
Come meet your relatives.
Africa
Milk
Hair

Layered lighting by Suzanne Powadiuk creates drama in restaged **National Museum of Natural History** exhibits

By Alice Liao

Dioramas have been the backbone of natural history museums for more than a century. Last year, however, the Smithsonian Institution's National Museum of Natural History broke with this tradition when it unveiled the revamped Kenneth E. Behring Family Hall of Mammals, one of the largest projects undertaken by the museum since opening in 1910. The 25,000-square-foot facility's Beaux-Arts interiors, originally designed by architects Hornblower and Marshall, were restored by the firm of Hayes, Seay, Mattern & Mattern. The new installation enhances a collection of 274 mammals with a host of high-tech, interactive media. Exhibition designer Reich + Petch Design International has situated most of the specimens in straightforward, open displays that keep the focus on the animals while showcasing the larger backdrop of the interiors. "Because the structure of the exhibits could not touch the historic fabric of the building, we were creating a building within a building," says director of exhibits Stephen Petri. "Our challenge was twofold: To tell the story of the collections and to weave that story into the architectural experience of discovering the gallery."



With rooms designated for each continent, the displays are organized geographically as a way to explore the impact of different habitats on the evolution of mammals. The layout of the spaces and exhibit placement help move people through the building, an important function for a venue receiving 10 million visitors a year. Because all of the animal installations are static, audiovisual effects and dynamic lighting conceived by Suzanne Powadiuk immerse visitors in the drama of evolution. "The way to bring these objects to life was by giving people a sense that the context for these creatures is constantly shifting," says Petri. "Evolution occurs over long spans of time but is a response to changes that happen moment by moment."

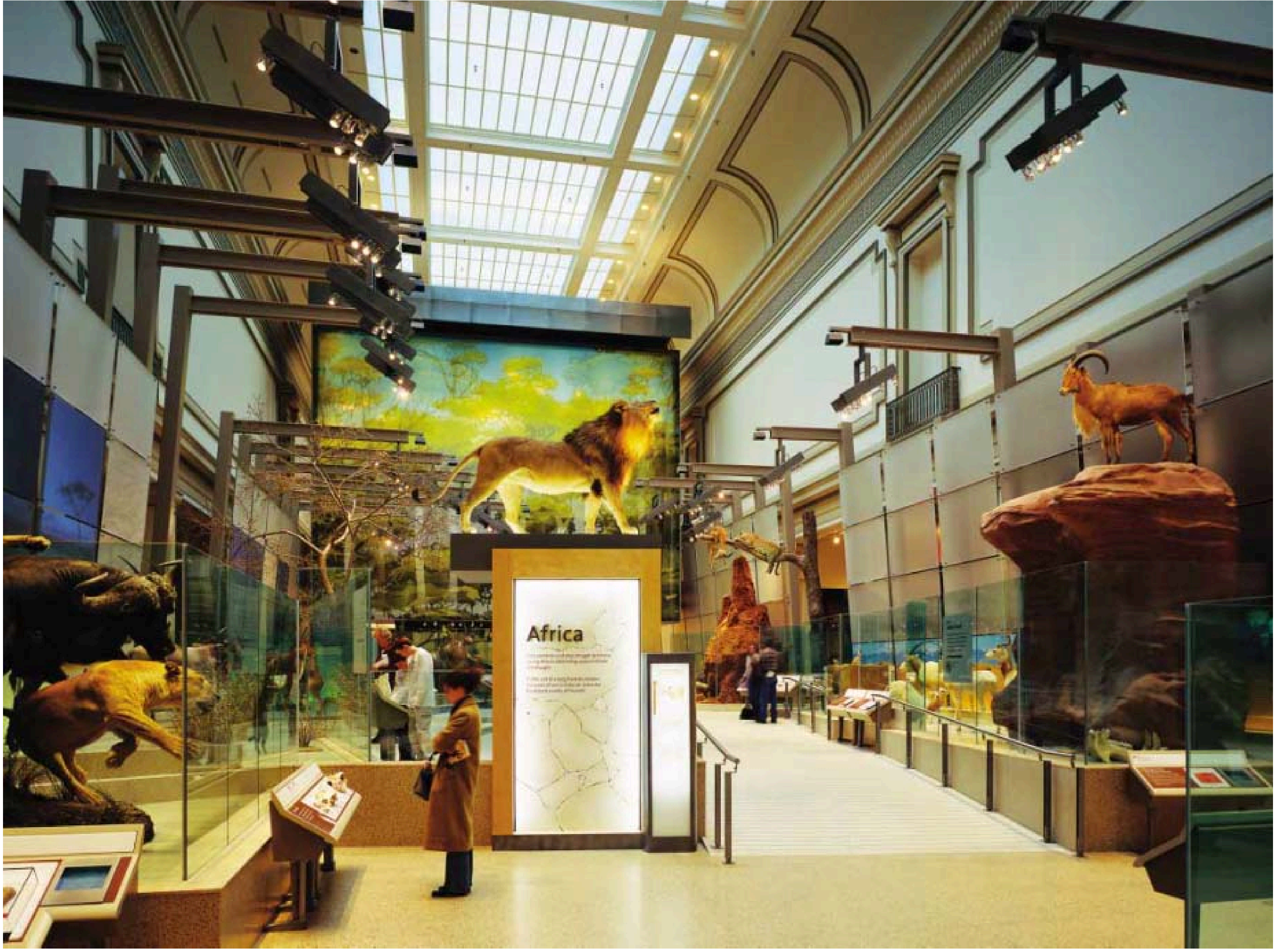
This idea of environmental flux is vividly expressed in the centerpiece of the project, the Africa Hall. From the entrance, where luminous signage and pylons edgelit with LEDs introduce key themes, visitors enter the 56-foot-tall space, drawn farther inside by a leopard perched on a tree limb. As patrons meander through the exhibits of African wildlife, a massive laylight overhead begins to darken, signaling the end of the dry season and the approach of a rainstorm. To produce the illusion, Powadiuk concealed PAR38s and color scrollers in the attic between the laylight and a skylight, both of which were restored. Quartz PAR56 fixtures, mounted along the edges of the glass, provide ambient illumination while photocells adjust for daylight fluctuations.

The color shifts are accompanied by the sound of thunder and strobes of lightning, which are simulated by a xenon flasher. Rear-projected onto frosted-glass panels and also contained in the floor, video images depict the changing landscape. The storms, which occur every 10 minutes, are programmed into a control system that also operates the lighting of a rain forest, painted onto layers of a 40-foot-tall scrim. Anchoring the Africa Hall, the panels vary in transparency, adding three-dimensionality, and conceal a network of catwalks that support an array

Alice Liao is a freelance writer based in Teaneck, New Jersey. She is a frequent contributor to the special lighting section of RECORD.

Project: *Kenneth E. Behring Family Hall of Mammals, Smithsonian Institution, National Museum of Natural History, Washington, D.C.*
Lighting designer: *Suzanne Powadiuk Design—Suzanne Powadiuk, principal designer*
Architect: *Hayes, Seay, Mattern & Mattern*
Exhibit designer: *Reich + Petch Design International—Tony Reich, principal; Stephen Petri, Fang-Pin Lee, Pauline Dolovich, Edmund Li, Sharon Ohno, Leslie Carelton, Heather Chiao, Stan Jurkovic, Dave Brohman, Ron Flood, project team*

PHOTOGRAPHY: © KERUN IP



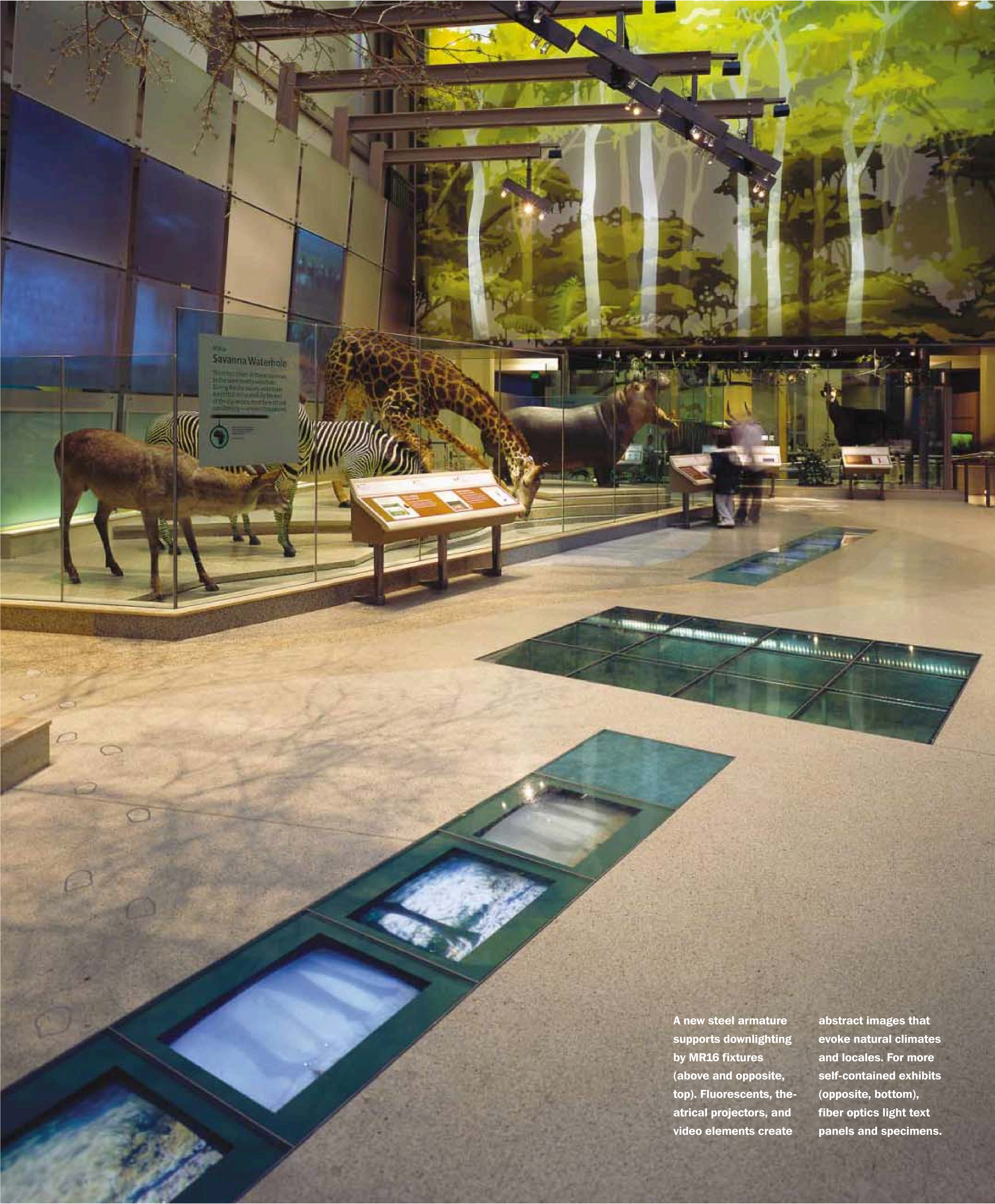
Monotreme
Mars

of warm and cool fluorescents, MR16s, and theatrical image projectors. As the lighting shifts from the back to front of the scrim panels, the trees appear to shimmer with sunlight, casting patterns on the floor.

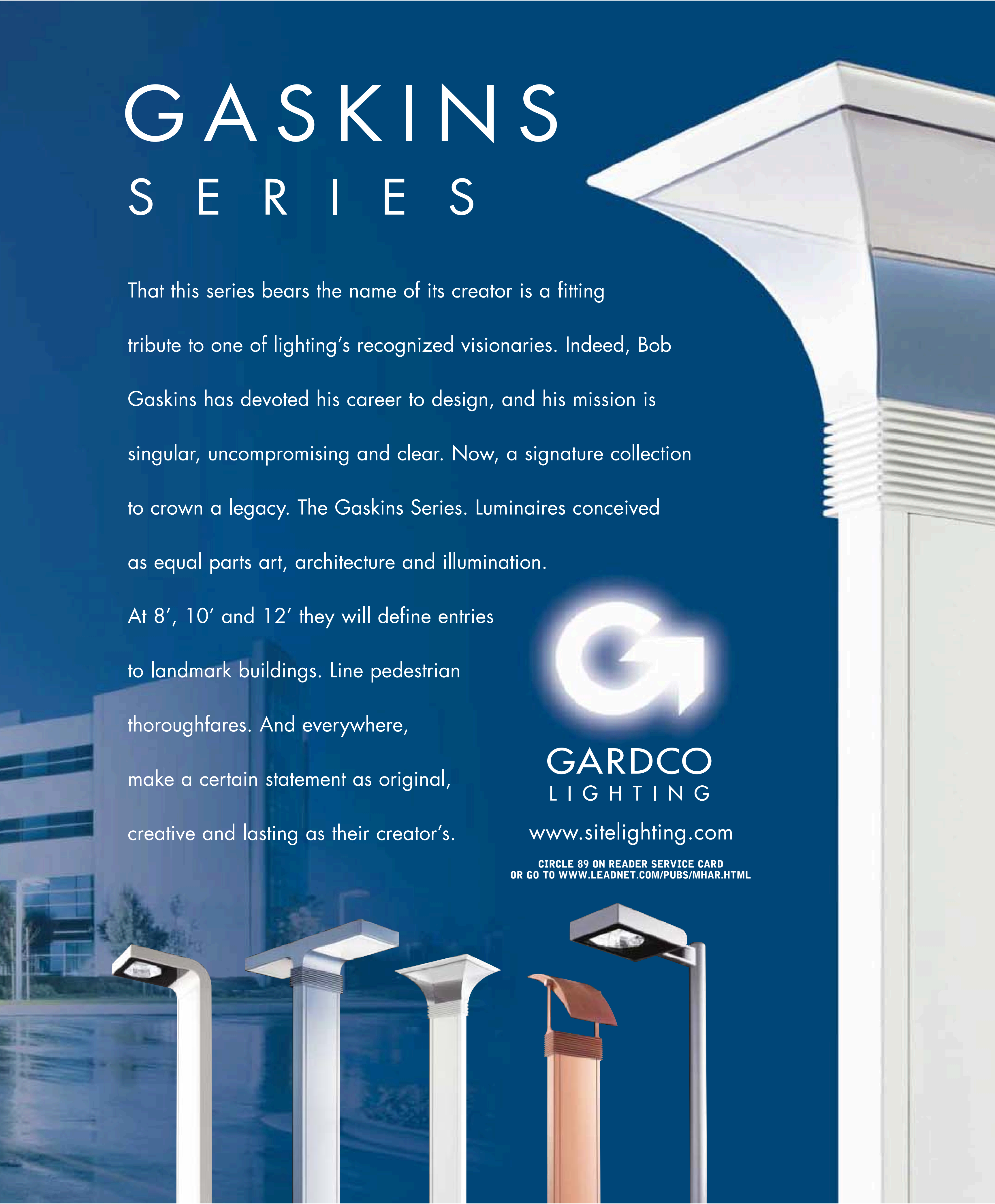
Set in conceptual environments and each articulated with key and fill light, the animals are presented like objects of art. Illumination is furnished by MR16s mounted on steel armatures, which extend above the displays and support additional graphics keying circulation paths. The MR16s were used throughout because of their precise color rendering. The steel armatures, notes Powadiuk, were developed to resolve the challenges presented by the ceiling height and to minimize visual clutter. "We wanted the exhibits to be as open as possible and the laylight and upper portion of the hall to remain unobstructed," she says. Plainly visible, the steel framework draws one's eye toward the ceiling, emphasizing the scale of the space and further integrating the appreciation of the architecture into the experience of the exhibits. The solution is also fitting, Powadiuk adds, as the steel elements resemble the skeleton of a whale, which is the largest member of the mammal family. ■

Sources
Track lighting: *LSI; Litelab*
Fiber optics: *Fiberstars*
Low-voltage lighting: *Clikstrip*
Theatrical fixtures: *ETC*
Fluorescent striplights: *Belfer; Metalux*
Path lights: *Bega*
LED signage: *Optosign*
PAR fixtures: *Zumtobel/Staff*
Custom lighting: *Lighting Nelson and Garrett*

For more information on this project, go to Projects at **www.architecturalrecord.com**.



A new steel armature supports downlighting by MR16 fixtures (above and opposite, top). Fluorescents, theatrical projectors, and video elements create abstract images that evoke natural climates and locales. For more self-contained exhibits (opposite, bottom), fiber optics light text panels and specimens.



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Illumination by Cosentini Lighting Design creates a sense of place at an **Equinox** fitness center in New York

By William Weathersby, Jr.

Towering above New York City's Columbus Circle, the Time Warner Center, designed by Skidmore, Owings & Merrill, pivots toward impressive views of Central Park. For the new Equinox fitness club at its base, however, interior architect Platt Byard Dovell White was charged with creating a sense of place in a windowless facility two levels below grade. The location anchoring the new multiuse center was attractive to Equinox, which is in the midst of a nationwide expansion, but the irregularly shaped cellar posed a challenge for accommodating the program. "Large pieces of the building's structure and massive conduits were coming through the space," says principal architect Ray Dovell, AIA. "It looked like a messy, horizontal duct. For Equinox, we had to establish a floor plan with a clear notion of orientation, and a progression of rooms whose fitness functions are telegraphed to patrons."

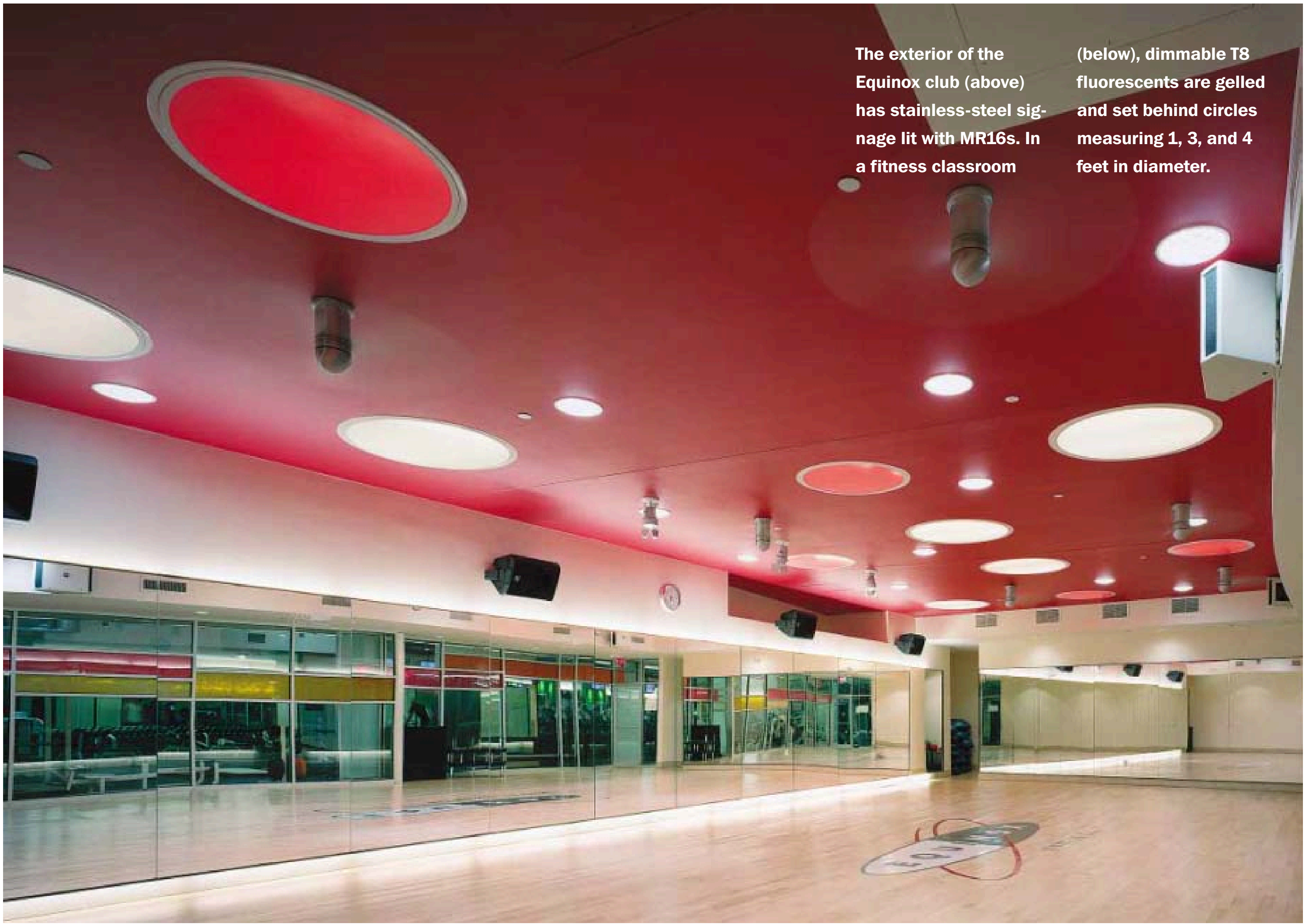
Taking their cue from the arc of the Columbus Circle traffic interchange in front of the complex, the architects created a radial series of columns within the club as the curving spine of the plan. A main exercise area spans 400 feet, bordered by ramps leading up to spa-treatment and locker rooms. Additional glass-enclosed exercise rooms follow the progression of the arc. Throughout the club, sight lines offer patrons views into exercise areas beyond each space to avoid a compartmentalized feeling. Robust materials including metal, glass, and colorful mosaic tiles, stand up to heavy use while demarcating different exercise zones.

Supporting the architect's space-making is illumination by Cosentini Lighting Design, which helps to establish a varied landscape with clear orientation cues. From subtle shaded pendants in a yoga studio to the blue jelly-jar fixtures glowing

Project: *Equinox at Columbus Circle, New York City*

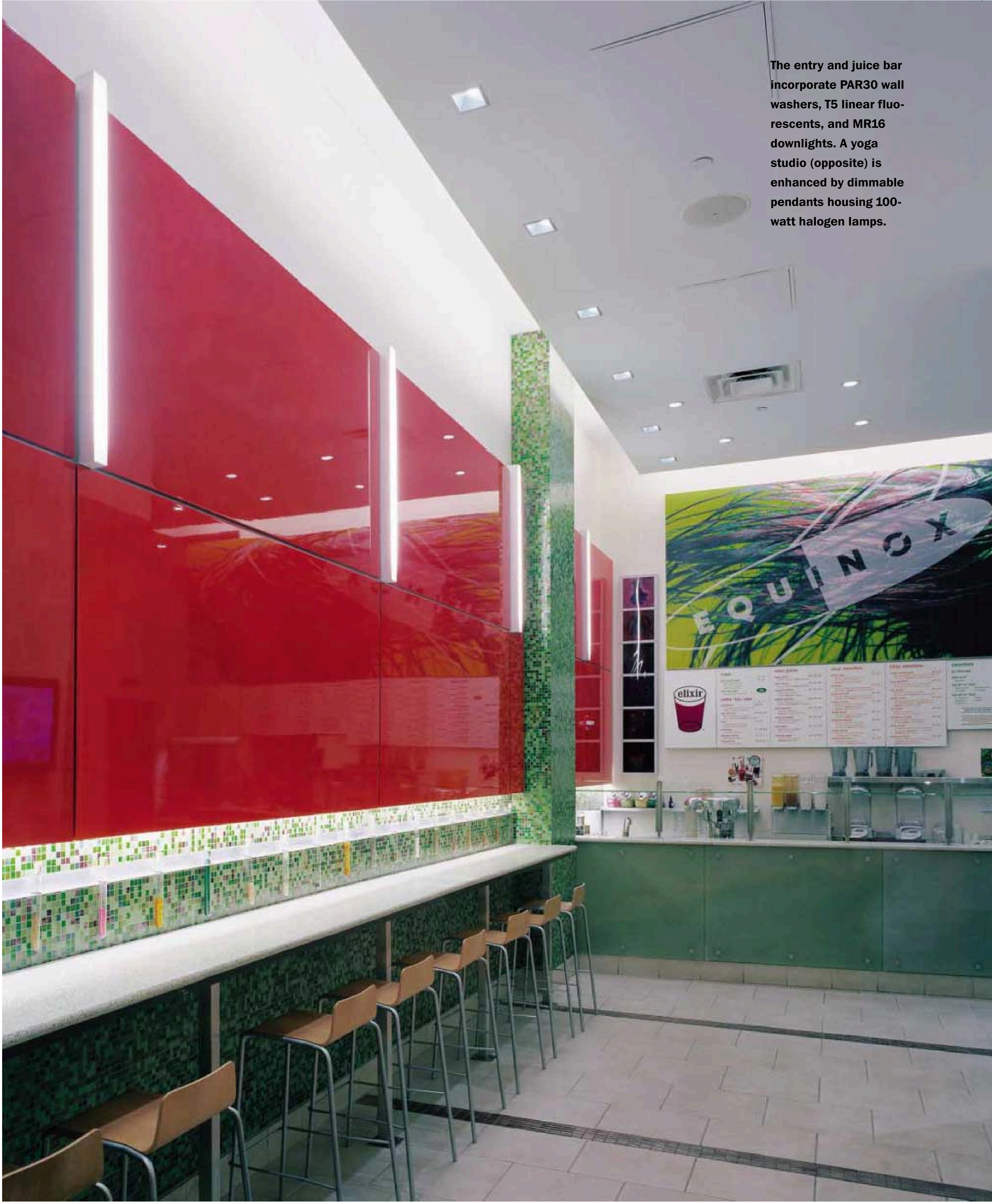
Lighting designer: *Cosentini Lighting Design—Stephen Margulies, principal; Fernando Soler, senior lighting designer*

Architect: *Platt Byard Dovell White Architects—Ray H. Dovell, AIA, partner in charge; Matthew Muller, project manager; Erica Edelman, Ivan Morales, project team*



The exterior of the Equinox club (above) has stainless-steel signage lit with MR16s. In a fitness classroom (below), dimmable T8 fluorescents are gelled and set behind circles measuring 1, 3, and 4 feet in diameter.

PHOTOGRAPHY: © PAUL RIVERA/ARCHPHOTO, EXCEPT AS NOTED



The entry and juice bar incorporate PAR30 wall washers, T5 linear fluorescents, and MR16 downlights. A yoga studio (opposite) is enhanced by dimmable pendants housing 100-watt halogen lamps.

over the heads of cyclists in a spinning class, "lighting is dimmable with a variety of lamp sources to create a range of experiences for clients," says lighting designer Fernando Soler.

In the street-level entrance lobby, the only space in the club graced by daylight, a juice bar and colorful graphics welcome gym members. Dimmable PAR30 halogens wash the red resin-treated wall panels, while linear fluorescents mounted vertically create a sculptural presence. A ceiling cove is uplighted with T5 fluorescents for ambient illumination, while MR16s downlight the retail countertop.

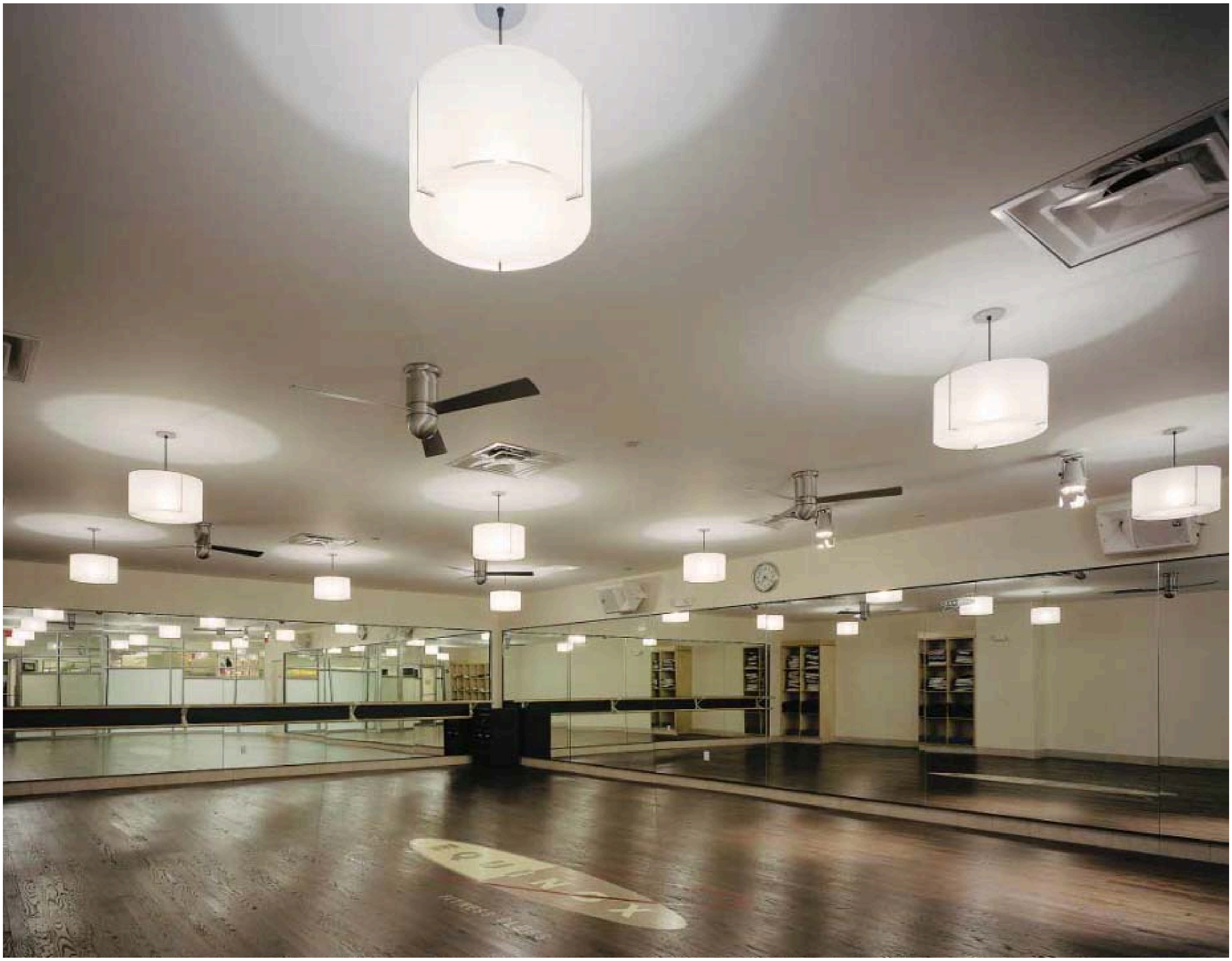
FROM THE POOL AND LOUNGES TO ROOMS FOR YOGA AND SPINNING CLASSES, SPACES FEATURE TAILORED LIGHTING.

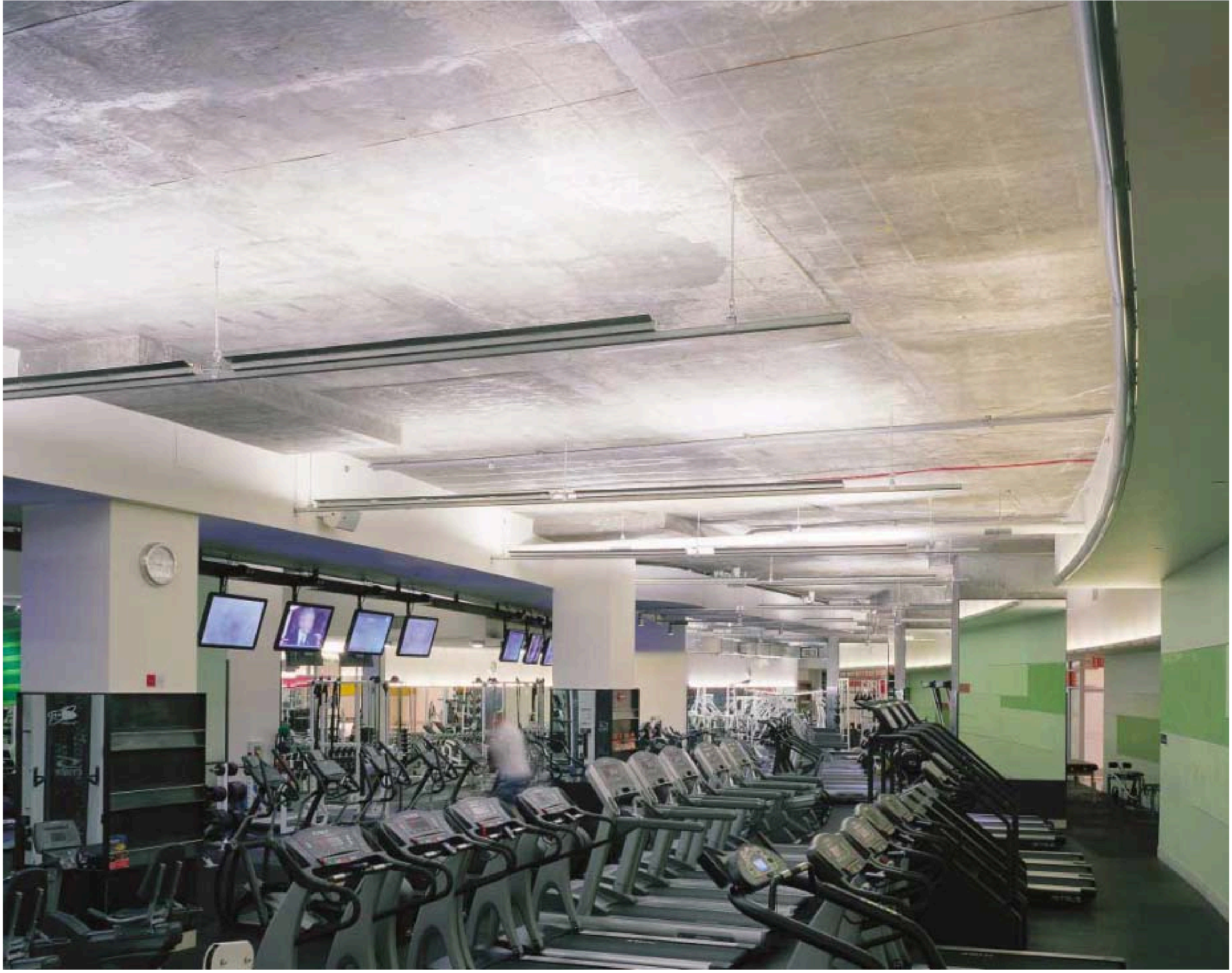
Reached by elevator, the Equinox reception area visually introduces the club's "exercise arc" with a check-in counter set before a cylindrical structure clad in ruddy Venetian plaster. Three frosted-glass pendants housing dimmable halogens light the countertop, while MR16 downlights graze the plaster wall. Nearby, a row of glass-enclosed cubicles for membership advisers are outfitted like small living rooms or lounges, with combination up/downlights and dimmable pendants. Wall washers fitted with 60-watt halogens are set in a continuous cove to illuminate textured plaster walls behind each Equinox counselor station.

For the sweeping main exercise area, Soler specified a galvanized steel pendant that combines uplight and downlight components. Each fixture features a two-lamp striplight with a modified reflector. T5 fluorescents illuminate the rough concrete ceiling, giving it a burnished look. Metal-halide and incandescent downlights provide focused illumination for the weight-lifting areas. Indirect lighting avoids glare on flat-screen televisions within the cardiofitness section of the room. Sconces wall-mounted above mirrors contain T5 lamps within aluminum housings with frosted acrylic lenses. Along the perimeter circulation route, a continuous-curve fixture visually fills in the edge of the ceiling plane with T8 fluorescents mounted on the fascia. Downlights graze the green mosaic tile walls that front the locker rooms, indicating the next zone.

In the men's and women's changing rooms, T5 striplights atop rows of lockers indirectly light dressing areas. Circulation routes through each area are enhanced with compact fluorescents fitted with wide lenses to provide higher light levels. MR16 wall washers in each shower enclosure highlight green mosaic tile walls. At grooming stations, 40-watt 4-by-4 halogen fixtures are sheathed in frosted glass for flattering side light.

The main fitness classroom's ceiling is graced with a random





pattern of illuminated discs in three sizes: 1, 3, or 4 feet in diameter. Fitted with dimmable T8 fluorescents, each circle features gelled fixtures in combinations of either white and red or white and amber. Wired on two circuits, the room's light levels and hue can be adjusted to suit a session's exercise routine or music. The colorful lighting plays off laminated interlayers of yellow and orange film set within the room's curtain-wall enclosure. PAR38s fitted with barn doors spotlight the fitness instructor.

"We wanted to make the yoga classroom as warm and meditative as possible," says Soler. Halogen pendants cloaked by cloudy, textured shades cast diffuse light throughout the wood-floored space. In a children's activities room nearby, T12 fixtures are set in overlapping channels of different heights and colors for a whimsical look. The swimming pool's canopy, meanwhile, features an asymmetrical cove uplit with T8 fluorescents, while underwater lights provide an ethereal glow. At this Equinox club, sophisticated lighting enhances the many modes of keeping fit. ■

The main workout area (above) features T5 and T8 fluorescent uplights and metal-halide downlights. A cove with T8 fixtures illuminates the ceiling over the pool (below).

PHOTOGRAPHY: © JONATHAN WALLEN (BOTTOM)

Sources

Recessed downlights: *Cooper Portfolio*

Fluorescent striplights: *Bartco Lighting*

Skylight fluorescents: *Legion*

Surface-mounted linear fluorescents: *Xenon Light*

Pool fixtures: *Paramount; Kurt Versen*

Custom pendants: *Resolute*

Ceiling fan: *Modernfan*

For more information on this project, go to Projects at ***www.architecturalrecord.com***.

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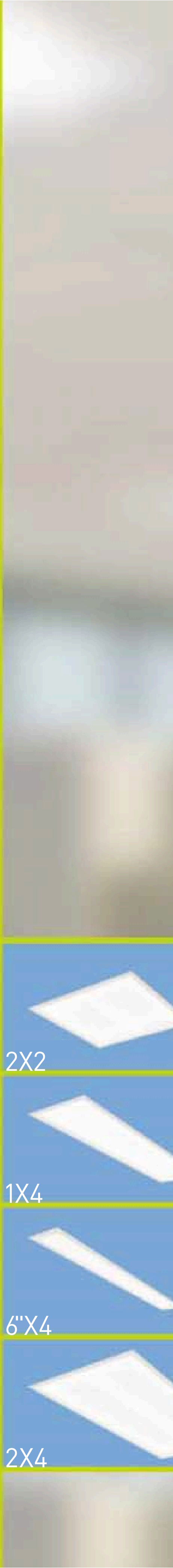

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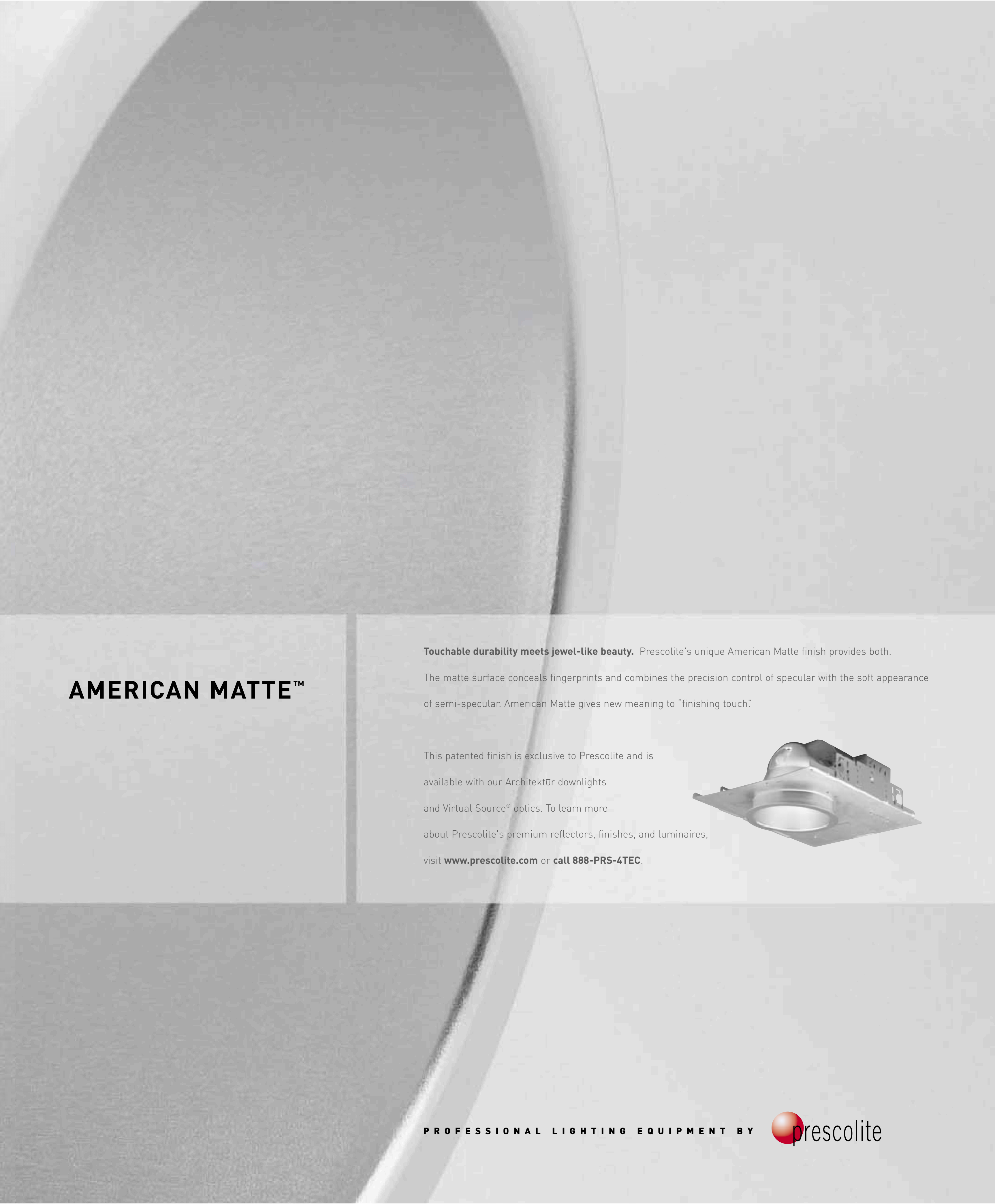

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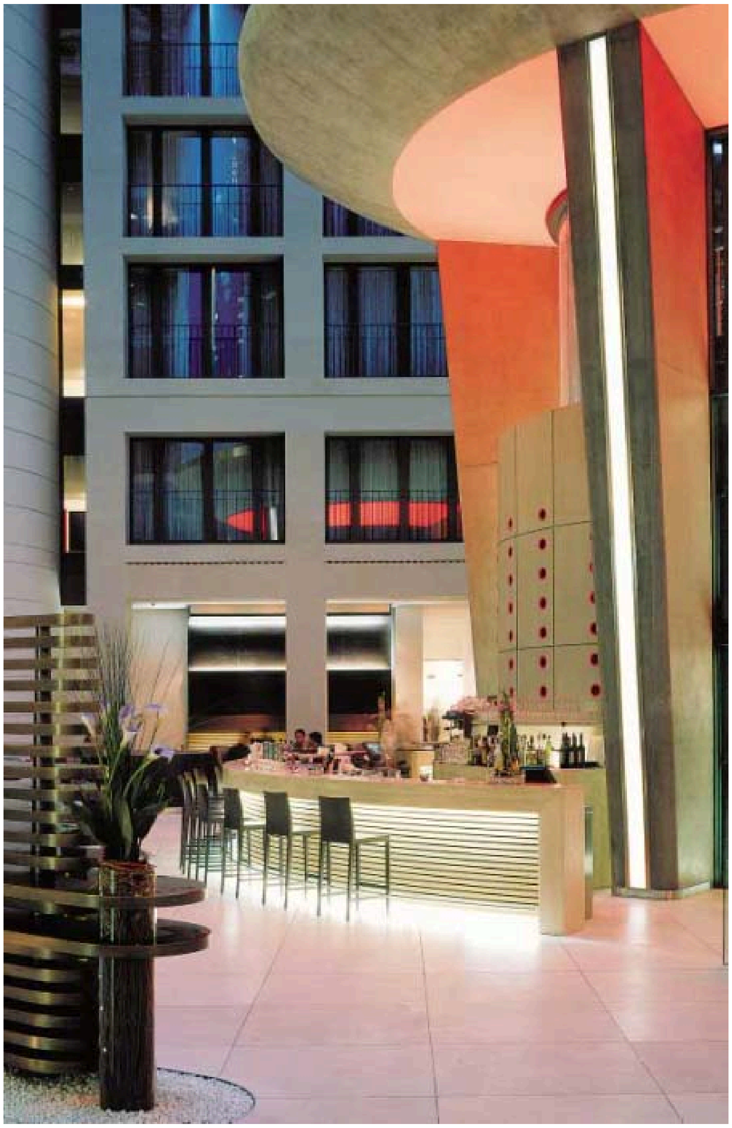
PROFESSIONAL LIGHTING EQUIPMENT BY prescolite

At the **Radisson SAS Hotel** in Berlin, Virgile and Stone leads a team threading public spaces with light

By William Weathersby, Jr.



PHOTOGRAPHY: © CHRIS GASCOIGNE

An illuminated cylindrical aquarium and internally lit check-in stations are dramatic elements greeting guests (opposite).

Floor-recessed halogens add ambient light. A curving bar wrapping the central tower is lit with white cold cathode (above).

When guests check into the new Radisson SAS Hotel in Berlin, they encounter intriguing interiors quite unlike what they might expect to find at a chain hotel geared toward business travelers. Rising at the center of the atrium lobby, a spectacular, five-story-tall cylindrical aquarium glows from within. Proceeding to the check-in area situated at the base of the towering tank, patrons arrive at individual registration stations that have the look of conceptual sculpture. “This is a big departure for Radisson SAS,” says principal architect Carlos Virgile of London-based Virgile and Stone Associates. “It is hotel design writ large as a marketing tool.”

Commissioned to design the public spaces of the hotel (the 427 guest rooms were orchestrated by BHPS Architects), Virgile worked with a team of lighting consultants—including the Berlin-based Kuehn Bauer Partner and specialty lighting expert Volker von Kardorff—to imbue the atrium lobby, restaurants, and bars with a play of color, illumination, and abstract aquatic imagery.

Nestled in the heart of Berlin, the hotel is part of the Cityquartier DomAquarée, a multiuse development that also houses shops, apartments, and offices. Water is the dominant theme of the complex, and the impressive aquarium, called the AquaDom, is its signature element. Billed as the world’s largest freestanding cylindrical aquarium—measuring 52 feet high and 36 feet in diameter—it is operated by the neighboring Sea Life attraction. The 264,172-gallon saltwater acrylic tank is filled with 2,500 tropical fish. Though serving as a showcase in the hotel lobby and visible from its 96 business-class guest rooms, the aquarium is accessed by admission from a separate entrance. Patrons ascend via a split-level glass elevator at its center to view the sea life. Fiber-optic lighting and the elevator’s halogen fixtures cast light and shadow on the tank’s fish and outward to the hotel lobby beyond.

“The aquarium certainly dominates the lobby, but the scale of the atrium allowed us to establish a variety of complementary focal points,” Virgile says, “some active and dynamic, others more contemplative.” The central feature of the public space at a more human scale than the aquarium is the curved sculptural form that serves as its pedestal; it is the spoke around which hotel guest circulation flows. Fluorescents fitted with red gels, contrasting with the vibrant blue of the tank, uplight the structure and the underside of the aquarium.

Five hotel check-in stations are served by podiums constructed of travertine and sandblasted glass. Fiber-optic fixtures backlight a veneer of pebbles set inside the glass of each station. Color wheels periodically

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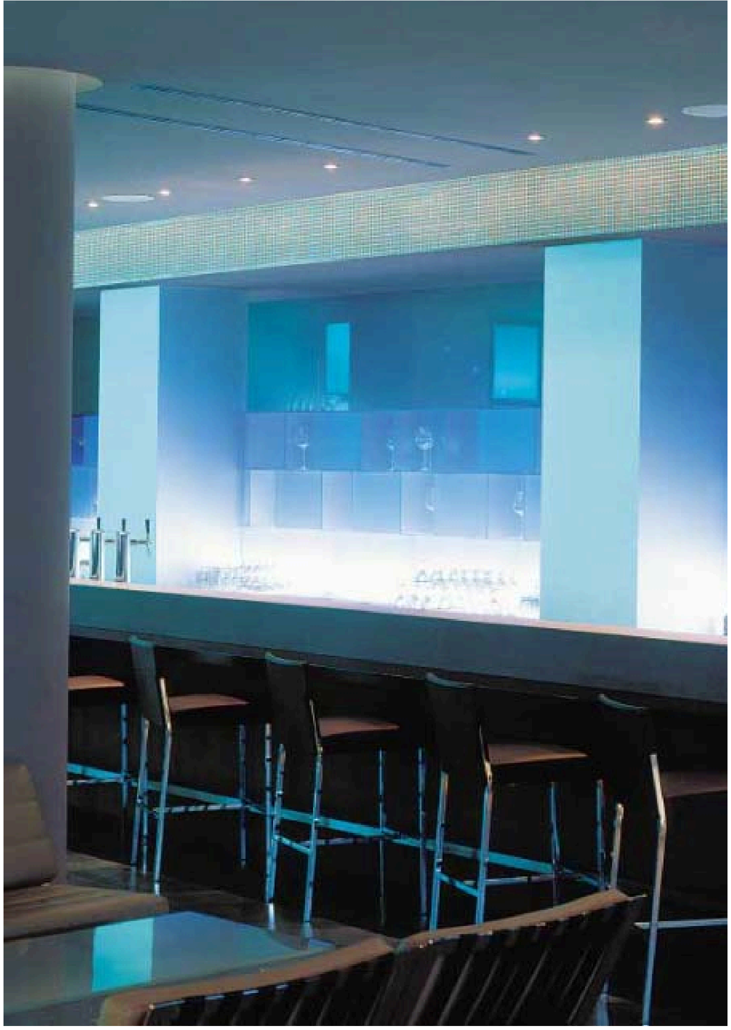
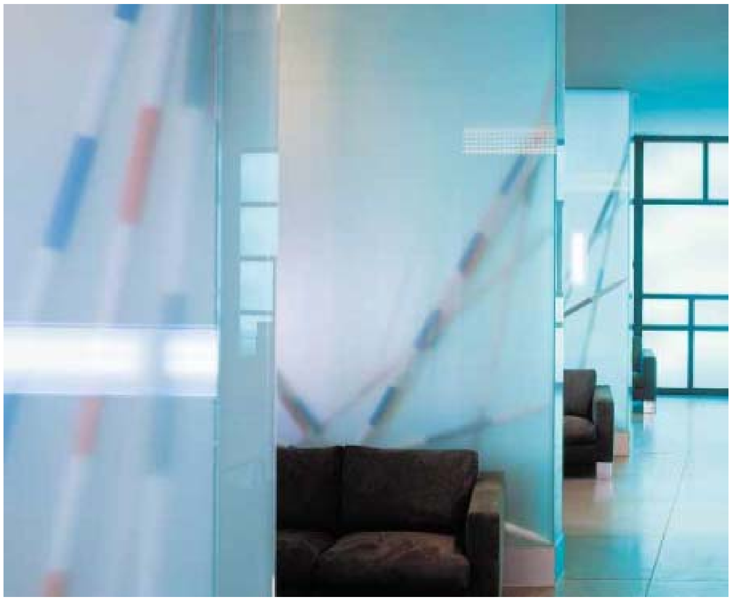
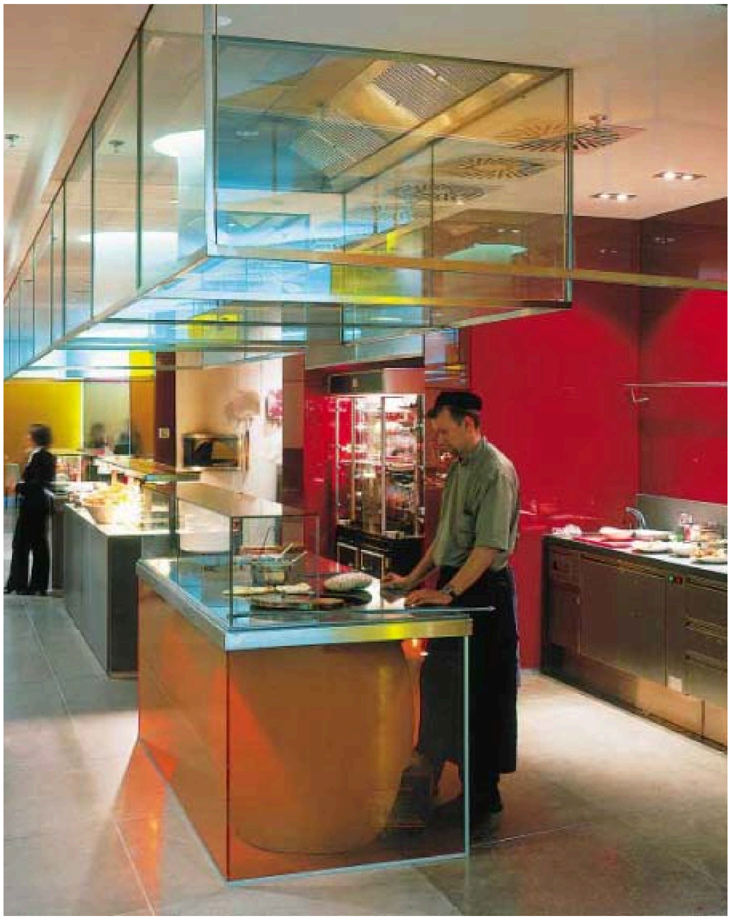
Project: *Radisson SAS Hotel, Berlin*
Owner: *Deutsche Immobilien Fonds*
Building architect: *NPS Tchoban Voss—Axel Binder, project architect*
Interior architect, lighting concept: *Virgile and Stone Associates—Carlos Virgile, principal*
Lighting consultants: *Kuehn Bauer Partner—Bernd Behrendt; Volker von Kardorff*
Project manager: *PSG—Jan Karow*



The design team juxtaposed opaque and translucent glass, both tinted and clear, to create abstractions of water in the lounge (left) and seating areas (below). Fiber-optic, halogen, and cold-cathode fixtures heighten the illusion. The Heat restaurant (bottom) features cooking stations enhanced with backlit glass canopies.





change the hue of the illumination. Behind the counters, a travertine and glass screen frames natural sea-fiber materials and is also lit with integrated fiber optics.

The lobby bar curves around the central cylinder. Topped by a concrete counter, its vertical surface is clad with timber slats, illuminated by white cold cathode to highlight the wood texture. Establishing a border between the bar and other sections of lobby seating, a curving sculptural element constructed of gilded bronze is uplit with floor-recessed halogen fixtures. As a quieter option for guests, a coffee bar adjacent to the atrium lobby is illuminated by incandescent floor lamps with stained oak bases.

A staircase framed by glass side walls leads from the lobby to the Aqua Lounge on the lower level. Following the staircase's descent, the glass panels gradually shift from opaque to clear to reveal the lounge's water-themed environment. Within the 60-seat space, vertically arranged fiber-optic strands seem "like stalactites of light," Virgile says. "The concept of the lounge is to suggest a watery, almost aquariumlike feeling. The lighting also is meant to evoke streaks of light refracted underwater." Ceiling-mounted white-cold-cathode elements ring the top of structural columns for a halo effect. A modular wall of blue acrylic is backlit with additional fiber-optic fixtures. Low cocktail tables are internally lit to cast ambient light on the faces of patrons. Other theatrical lighting effects, such as changing projections of aquatic images, sustain the mood.

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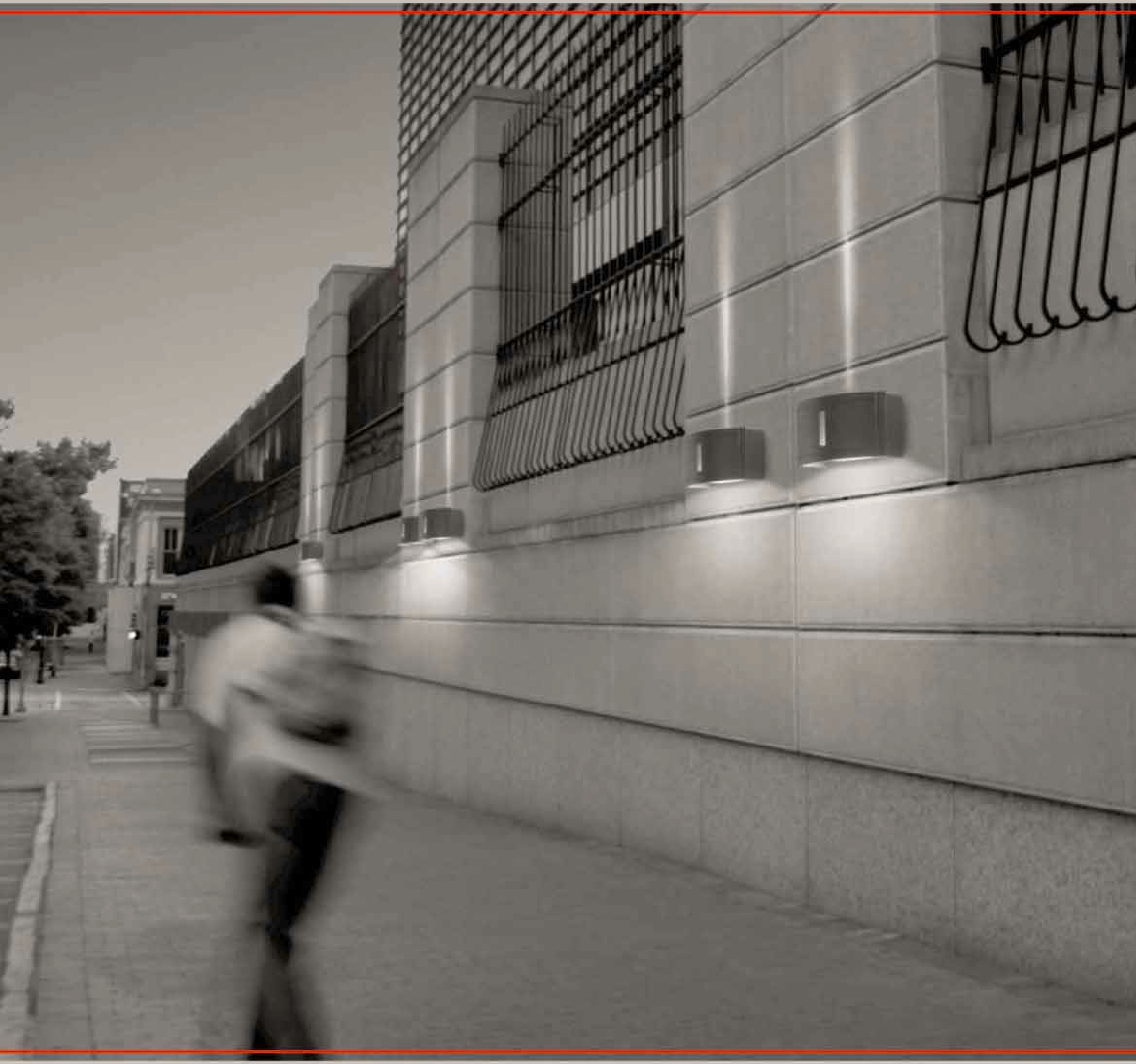

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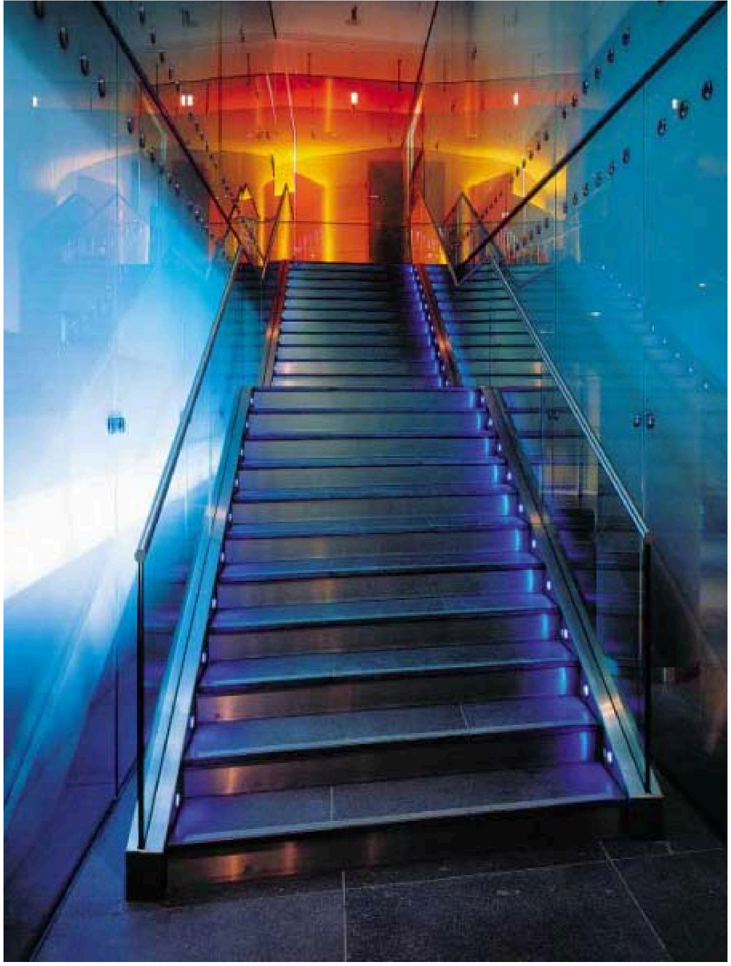

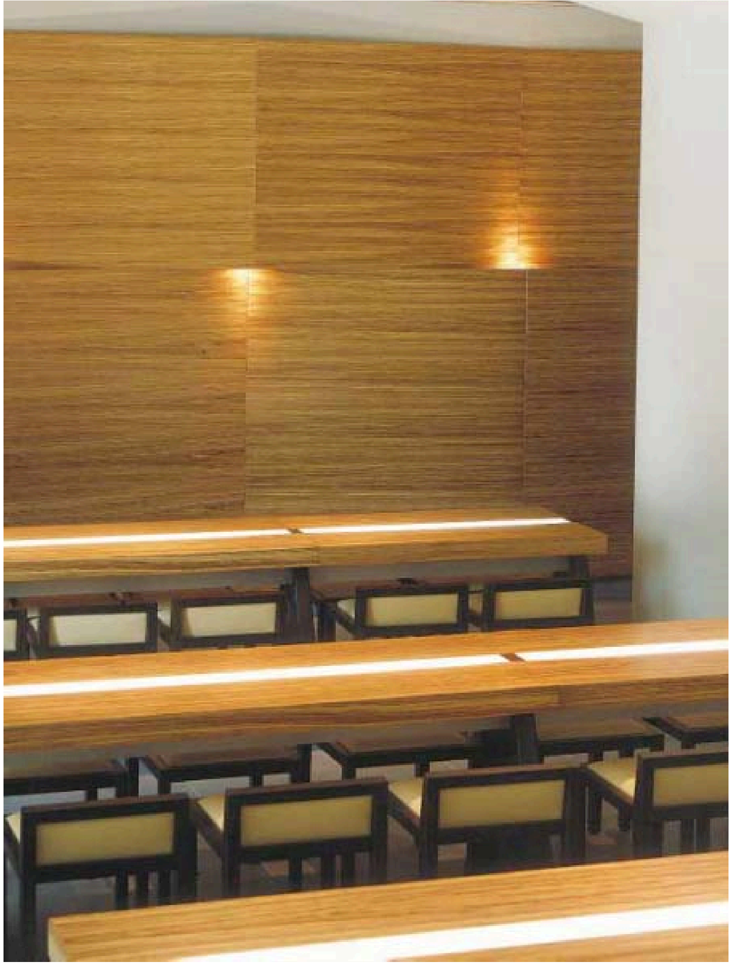

A staircase leading from the lobby to a lower-level lounge is framed by glass panels (above left). Both the panels and stair treads are illuminated with fiber-optic fixtures. Architect Virgile calls one lounge effect "stalactites of light" (below). Tables in the Noodle Kitchen (above right) feature center strips of light.

Adjacent to the Aqua Lounge, the 80-seat Noodle Kitchen is a casual restaurant showcasing Asian fusion cuisine. It is also accessible from the street, with a ramp leading from the entrance to the heart of the dining area, passing along a metallic mesh-clad wall on which theatrical projectors layer images of undulating water. Walls clad in Zebrano timber, metal mosaics surrounding columns, and a bar with a surface simulating off-white cracked porcelain are tactile details. Long wood tables feature bands of light inset down their centers. The color of the fluorescents can be changed for varied looks. In the evening, the lighting levels throughout the room are kept low, but the horizontal and vertical glass surfaces seem to pulsate with color and illumination.

In the 138-seat Heat restaurant, concrete plaster finishes contrast with warm wood, satin-finish metal details, and caramel-colored glass walls and ceiling elements. The space is dominated by mushroom-shaped concrete columns and an open design that allows diners to view chefs at work. A wood-burning oven, two Indian tandoor clay ovens, and a rotisserie grill add theatricality to the food preparation and presentation. Once again, the design team has harnessed light to make glass surfaces sparkle, and textured materials stand in relief. ■

Sources

Fluorescents: *Zumtobel Staff*

Custom cold-cathode lighting: *Volker von Kardorff*

Aquarium: *International Concept Management*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

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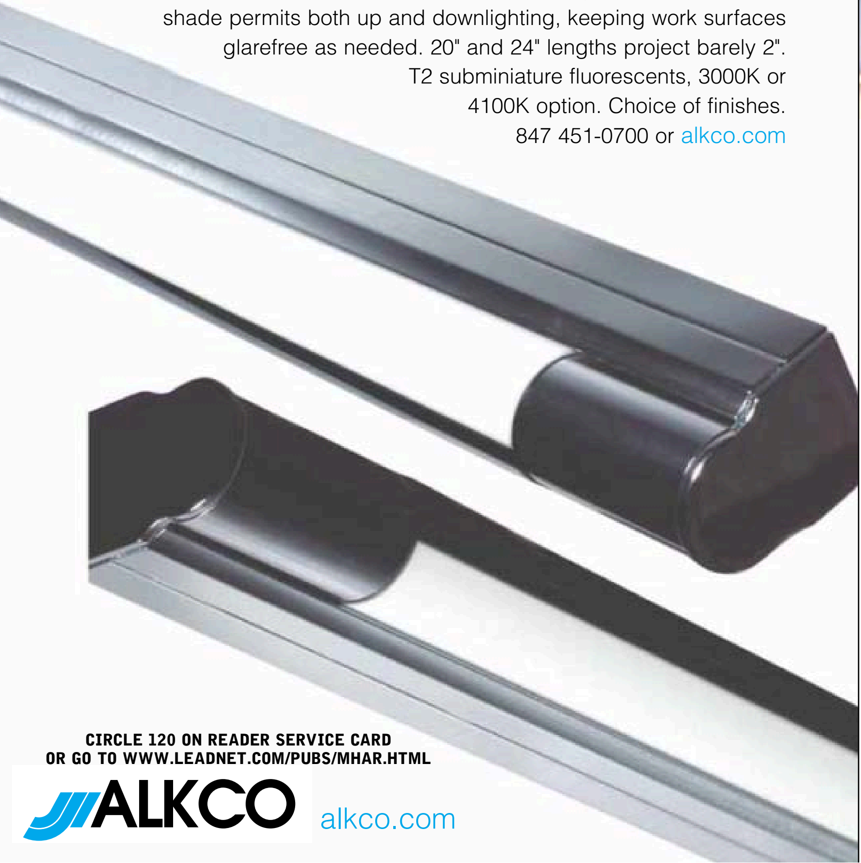

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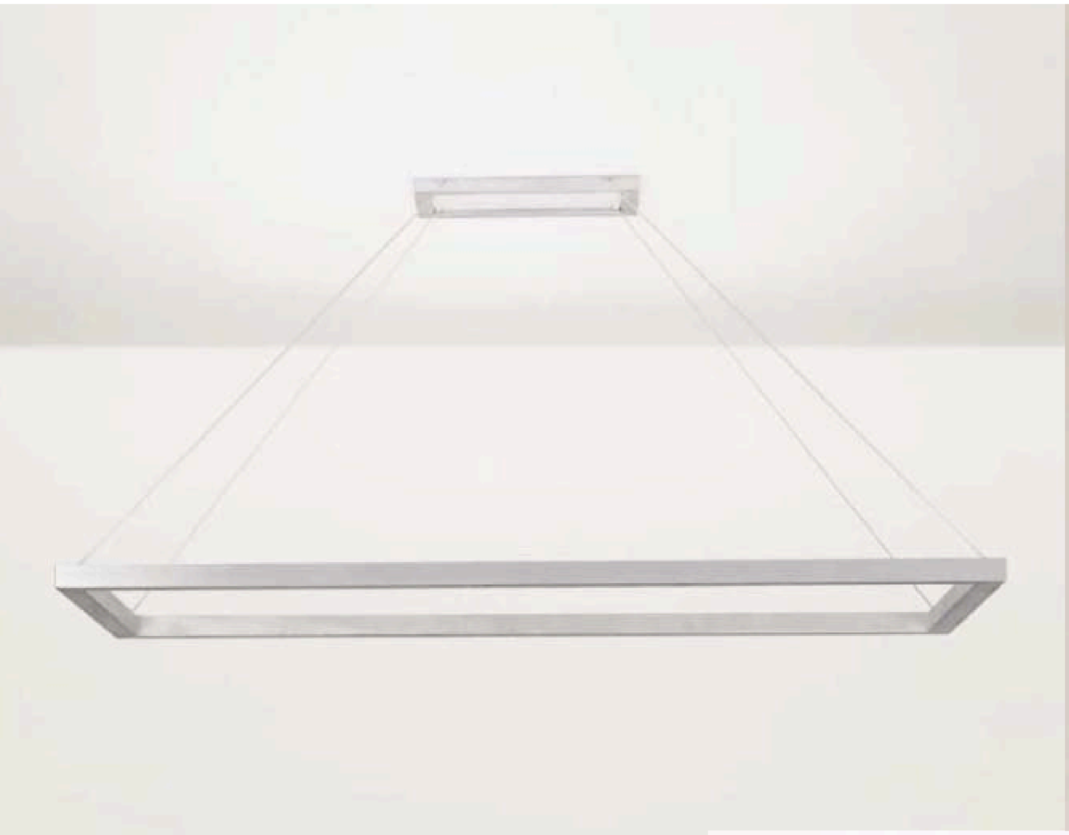

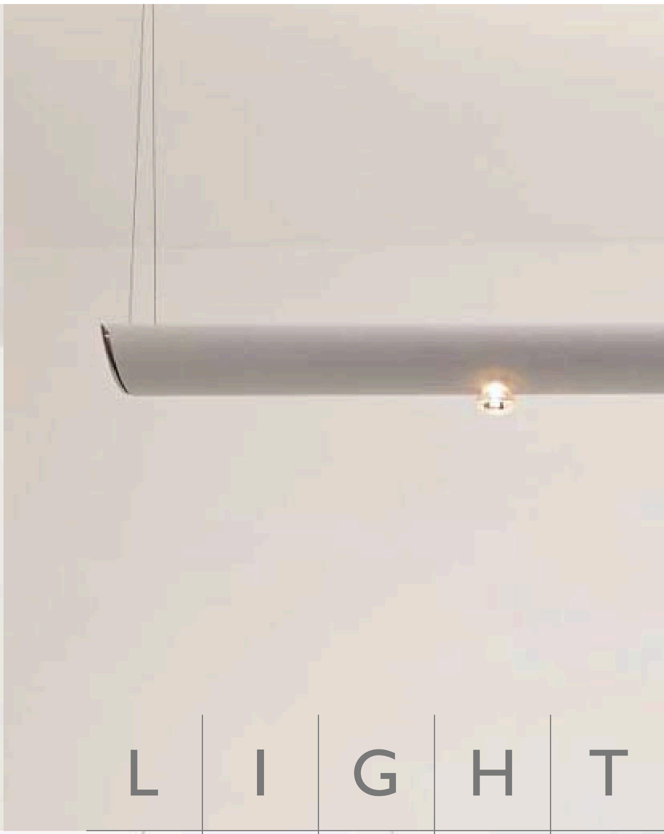

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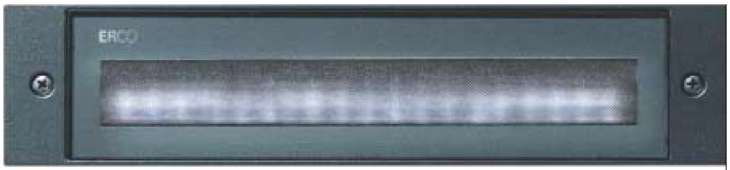
Lighting Products

▼ Rails and parasols

Boyd introduced several new products at this year's NeoCon trade show, including the Rail wall bracket (below right). The adjustable, lockable, directional bracket is lamped by a 120- or 227-volt T5 tube, and can be mounted horizontally or vertically. Available in 3', 4', and 8' lengths, the extruded-aluminum channel is 1¾" square and projects less than 4" from the wall for ADA compliance. The Parasol Pendant, also new from Boyd (left), features solid brass details paired with gently glowing panels of satin-etched white or gloss off-white acrylic. Boyd Lighting, San Francisco. www.boydlighting.com **CIRCLE 200**

▲ Weather-resistant floor light

The Tamburo outdoor light fixture was designed by Tobia Scarpa for Flos. The fixture can be attached to the floor or wall and offers downward lighting screened by a finned ring nut and diffused by a sandblasted protection glass. Weather-resistant polyurethane outdoor paint protects the closing rings, die-cast aluminum head, and triangular-shaped stem. The fixture is available in green or black and measures approximately 33" x 61" x 94" (including stem for the floor version). Tamburo will be available in the U.S. market by the end of 2004. Flos, New York City. www.flos.net **CIRCLE 201**



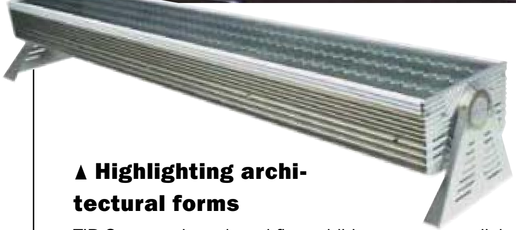
▲▼ LED pathway light source

The use of LED light sources in architectural lighting is shifting from experimental to practical applications. An example of this evolution is Erco's Axis Walklight with LED technology, presented at the Light+Building trade fair held last April in Frankfurt. Designed for safe, cost-effective lighting of areas such as stairs, ramps, platforms, and pathways, Axis combines a LED light source with sophisticated reflector and housing technology. Axis has a housing of corrosion-resistant cast aluminum with a double powder-coated finish. Using the recessed housing accessory, each luminaire can be pre-positioned in any structural element. Erco Lighting, Edison, N.J. www.erco.com **CIRCLE 202**

▲ Belgian-designed lighting collections

Belgium-based manufacturer Delta Light introduced several new collections of indoor and outdoor lighting at this year's Lightfair trade show in Las Vegas. For the Tubular collection (right), designer Fabiaan Van Severen designed fixtures that put a fluorescent tube in a range of freestanding standard and hanging lamps, wall lights, and ceiling lights. The Radar 15 ambient outdoor light (left) features a teak or corrosion-resistant stainless-steel housing. An electropolishing procedure enhances the durability of the corrosion-resistance and improves the luster of the metal. Delta Light USA, Fort Lauderdale, Fla. www.deltalight.com **CIRCLE 203**

Lighting Products



▲ Highlighting architectural forms

TIR Systems introduced five additions to its Destiny Series of architectural solid-state lighting products at this year's Lightfair show in Las Vegas. The Destiny Series offers specialized tools for lighting applications, using color and color-changing light to model and accentuate architectural forms. The product line incorporates the most powerful LEDs commercially available as the source of energy-efficient, long-lasting illumination. Destiny SL (fixture and application shown) highlights and silhouettes surfaces or structures, offering an intense, controlled, rectangular punch of colored light and a setback distance of 8' to 15'. TIR Systems, Burnaby, British Columbia. www.tirsys.com **CIRCLE 204**

▲ Floating points of light

Schott's LightPoints LED system incorporates LEDs into transparent glass conductor plates that are protected by a top and bottom layer of laminated glass. Since the clear conductor layer allows electricity to travel throughout the entire piece of glass, there is no need for any visible wiring. Applications include skylights, glass handrails, building facades, elevator ceilings, and signage. The glass is available in rectangular sizes up to 51" x 95" and standard thicknesses of ⅜" and ½". Schott, Elmsford, N.Y. www.us.schott.com **CIRCLE 205**

▼ Roadway lighting solution

Combined with complementary arm and pole selections, the Pechina outdoor luminaire is suited for roadway and area applications for a range of commercial and municipal applications. Pechina offers three asymmetric lighting patterns designed to provide optimal performance while controlling unwanted light emitted into the night sky. Holophane, Newark, Ohio. www.holophane.com **CIRCLE 206**

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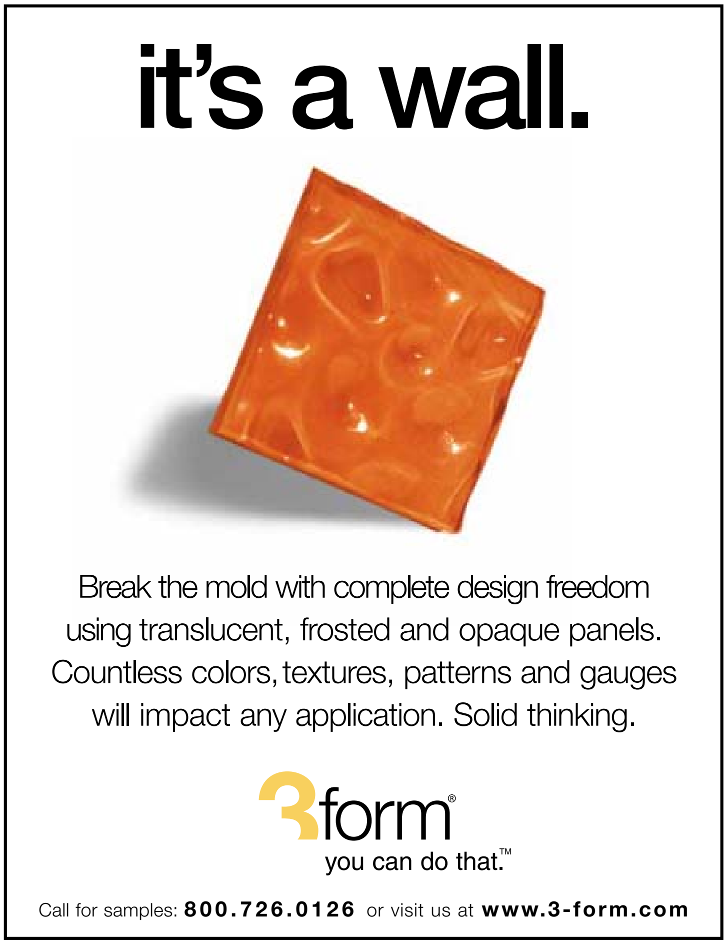

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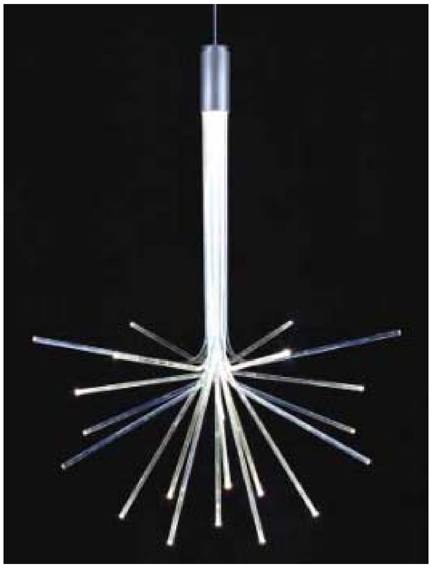
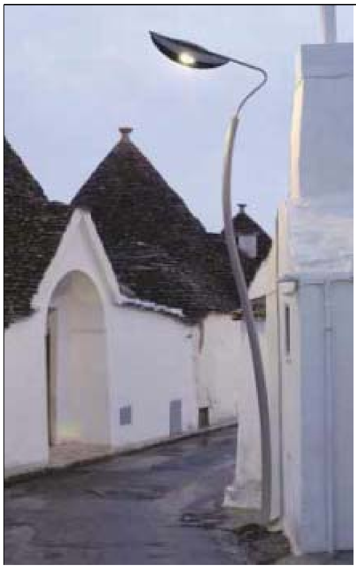
► Programmable LED tube lighting system

Element Labs has introduced Versa Tube, a LED-based light tube controlled by video signal. Element Labs' standard Versa Drive video processor allows a range of lighting styles to be programmed, including vibrant patterns to organic flows. Preproduction units of Versa Tube were recently on display at Apple Computer retail stores to help launch the iPod Mini. Element Labs, Austin, Tex. www.elementlabs.com **CIRCLE 207**



◄ Luxe Swedish design

Following a successful premiere in Europe last year, LYX Furniture and Light introduced its products to the U.S. market during the ICFF show in New York City last May. The collection, which is inspired by traditional Scandinavian design but makes a more luxurious statement, includes the Kristall Chandelier, designed by Jonas Wannfors. The light features glowing acrylic rods that emit a combination of even background light and soft spotlights, and works with either a hidden halogen or single fiber-optic light source. LYX Furniture and Light, Stockholm. www.lyx.com **CIRCLE 208**



◄ Brighten up the city

During this year's edition of the Light+Building trade fair held in Frankfurt, the Italian company Ghisamestieri presented the Mel Dans lighting system created by the Italian design firm DA2 Strategic Design. DA2 designed the light to properly illuminate the different parts of a town or city center, including the arcades, streets, and public gardens. Made of cast aluminum and polyurethane, the lamp is available in a range of colors. Ghisamestieri, Bertinoro, Italy. www.ghisamestieri.com

CIRCLE 209

For more information, circle item numbers on Reader Service Card or go to www.archrecord.com, under Resources, then Reader Service.

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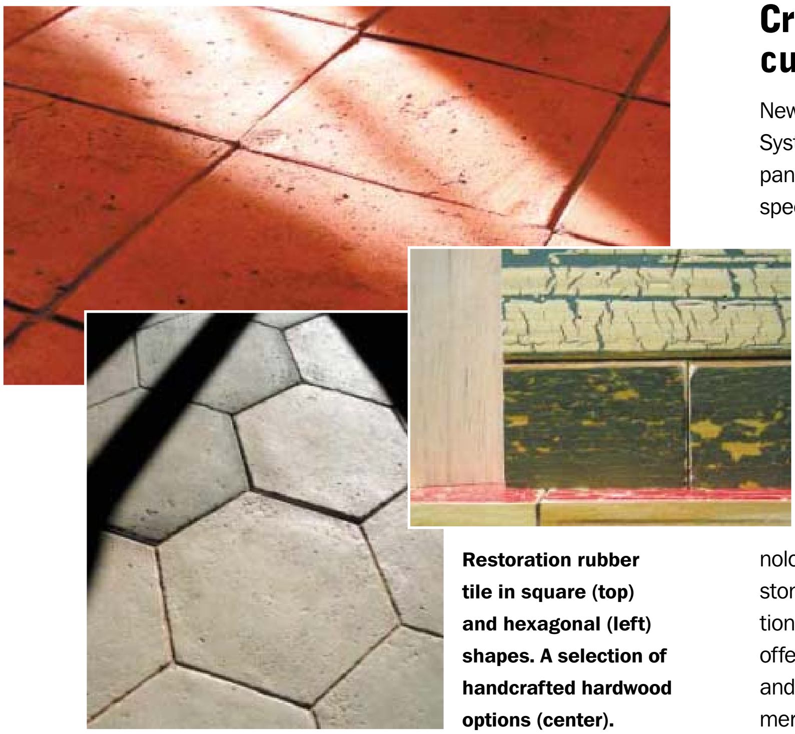
Products

Resilient & Wood Flooring

This year, specifiers saw an increase in the cost of flooring-grade lumber and plastic resins, in turn raising the price of some **resilient and hardwood flooring** products. This month's roundup includes a range of flooring options, including reclaimed wood, rubber, cork, and **linoleum products**. *Rita F. Catinella*



Restoration rubber tile in square (top) and hexagonal (left) shapes. A selection of handcrafted hardwood options (center).

Crafty options in rubber tile and custom hardwood flooring

New York City–based Architectural Systems offers a range of wood-panel, decorative-surface, display, speciality, and flooring product lines. The ASI Flooring Group comprises natural or engineered stone, resilient, and hardwood-flooring products. The Group's latest introduction includes Restoration Rubber Tile, a collection of square, rectangular, and hexagonal shapes in vintage hues. A breakthrough technology emulates the look of antique stones with rich, natural color variation, and the tactile rubber surface offers maximum nonslip protection and durability in demanding commercial environments.

Also new from Architectural Systems is Handcrafted Hardwood Flooring, a flooring collection that is custom milled, stained, and hand-distressed, one board at a time. The rustication process accentuates the character of the natural wood product. Choice woods are used to ensure that the flooring performs in all types of environments.

Stock samples are available from Architectural Systems at no charge. In addition to its product lines, the company now offers custom architectural millwork and installation, fabrication, and design development services for store fixturing. Architectural Systems, New York City. www.archsystems.com

CIRCLE 210

Sustainably harvested exotic wood additions

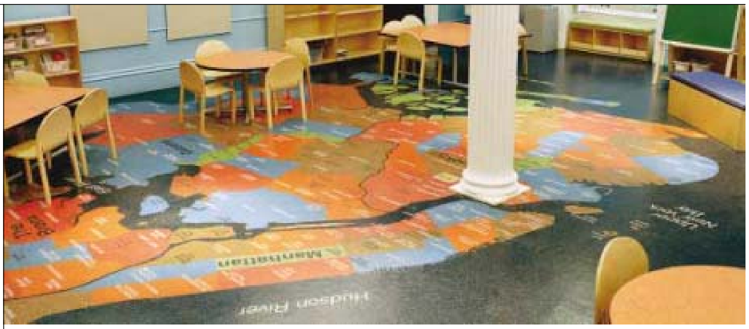
Mirage's prefinished hardwood flooring line includes a range of species, stains, and widths. This year, standard species such as red oak, maple, beech, and American walnut have been joined by two new exotic hardwood species, merbau and sapele.

From the forests of Indonesia, merbau is characterized by its distinctly contrasting grain and color, which ranges from yellow ochre to dark reddish brown. Merbau is known for a marked change in color as the wood matures and offers greater dimensional stability than many North American species. With its softer grain and reddish-brown hue, sapele, the African species, offers similar stability.

Mirage is a product of the Canadian company Boa-Franc, a firm dedicated to sustainable development through selecting materials only from responsible suppliers, financially supporting reforestation, maintaining a wood-recycling program, and using only nontoxic manufacturing products. Boa-Franc, Saint-Georges, Canada. www.miragefloors.com

CIRCLE 211

American walnut hardwood flooring.



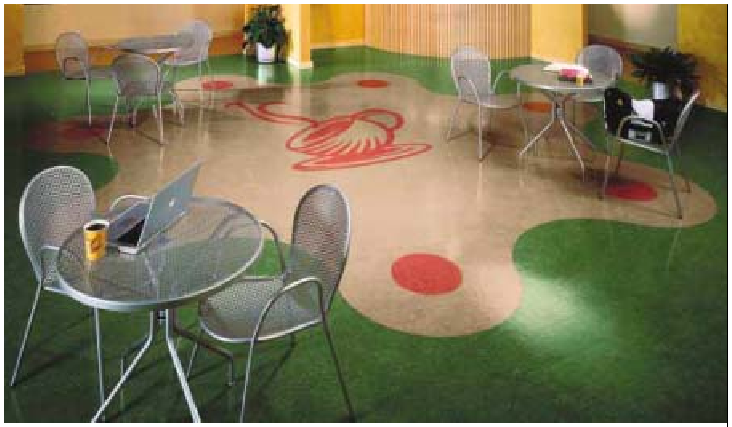
Top-scoring classroom flooring designs

Ecosurfaces was part of the winning team awarded the grand prize in the annual StarNet Design Awards Contest, a competition that recognizes creativity in commercial interior design through the innovative use of floor covering. The project, the City Hall Academy at the Tweed Courthouse in New York City, was designed by the New York firm of Loffredo Brooks Architects and features a variety of Ecosurfaces' recycled rubber flooring colors and waterjet-cut designs. The winning design ranges from brightly colored and intricately cut floor maps for grade school classrooms to more sophisticated tonal color combinations in which the rubber floor resembles wood or cork.

Ecosurfaces is made from high-quality, 100 percent recycled tire rubber and colorful EPDM flecks. Ecosurfaces Commercial Flooring, Lancaster, Pa. www.regupol.com

CIRCLE 212

Products Resilient & Wood Flooring



▲ Linoleum colors for North America

Armstrong crafted the Living Colors of Linoleum Collection to address emerging North American color and design trends. The collection, drawn from extensive customer, color, and industry research, includes specialized color palettes for health-care, education, and retail segments. The retail palette (sample shown above) spans more midtones for low-contrast patterning options and encompasses key neutrals and accents. Armstrong, Lancaster, Pa. www.armstrong.com **CIRCLE 213**

► Reclaimed elm logs

Mountain Lumber is a Virginia-based company that reclaims antique wood and transforms it into flooring, beams, and other architectural details. The company has imported 400-year-old Chinese elm timbers that have been revealed as old buildings are torn down for modernization. The flooring milled from these timbers has a rich butterscotch color with deep swirls of chocolate grain. Mountain Lumber, Ruckersville, Va. www.mountainlumber.com **CIRCLE 216**

▲ Expressive wood flooring

Tarkett has expanded its offering of exotic and character species in both engineered and solid wood flooring. The new sustainably harvested South American species of tigerwood and Brazilian cherry, and the North American species of Blue Ridge maple, include a wide range of colors and grain variations. The Blue Ridge maple solid wood floor, shown here in Buckskin, features a natural grayish-blue staining caused by organic elements, sugars, and starches found in the wood. Tarkett, Johnson City, Tenn. www.tarkett.com **CIRCLE 217**

► Plywood-look tiles

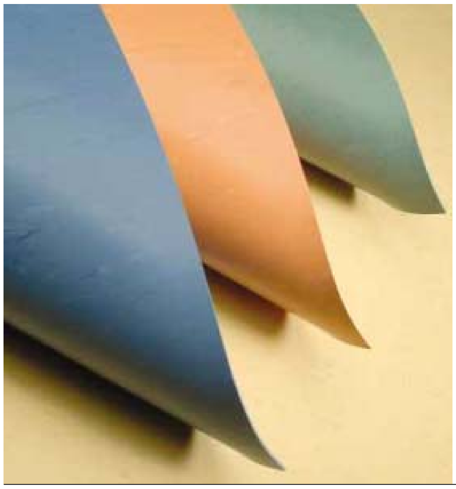
Alder Plywood from Amtico International gives the look of plywood with none of the disadvantages inherent in the natural material. The vinyl flooring product simulates the appearance of natural wood and works well for modern commercial interiors. Alder Plywood is available in two standard tile sizes: 12" x 12" and 18" x 18". Amtico, New York City. www.amtico.com

CIRCLE 214

▼ Logical rubber floor coverings

At this year's NeoCon fair, nora rubber flooring introduced noraplan logic, one of the company's four new product lines. The high-performance floorcovering is wear- and slip-resistant and features a manufacturing process that eliminates the need for waxing or sealing. Each of the line's 20 colors is available in rolls and tiles and lends itself to institutional, commercial, retail, and light industrial applications. The PVC-, plasticizer-, and halogen-free flooring contains high-quality rubber, mineral fillers, and environmentally compatible color pigments. Freudenberg Building Systems, Chicago. www.norarubber.com

CIRCLE 215



▼ There's more where that came from

Unicork Natural is a collection of nine flooring patterns in rich neutral tones made from the bark of cork trees, a renewable resource. The collection is manufactured, installed, and maintained with environmentally friendly materials, including solvent-free polyurethane binders, water-based polyurethane sealers, and water-based acrylic adhesives. The 25" x 12" tiles are offered with coordinating wall base in each pattern and color. To Market, Oklahoma City. www.tomkt.com **CIRCLE 218**

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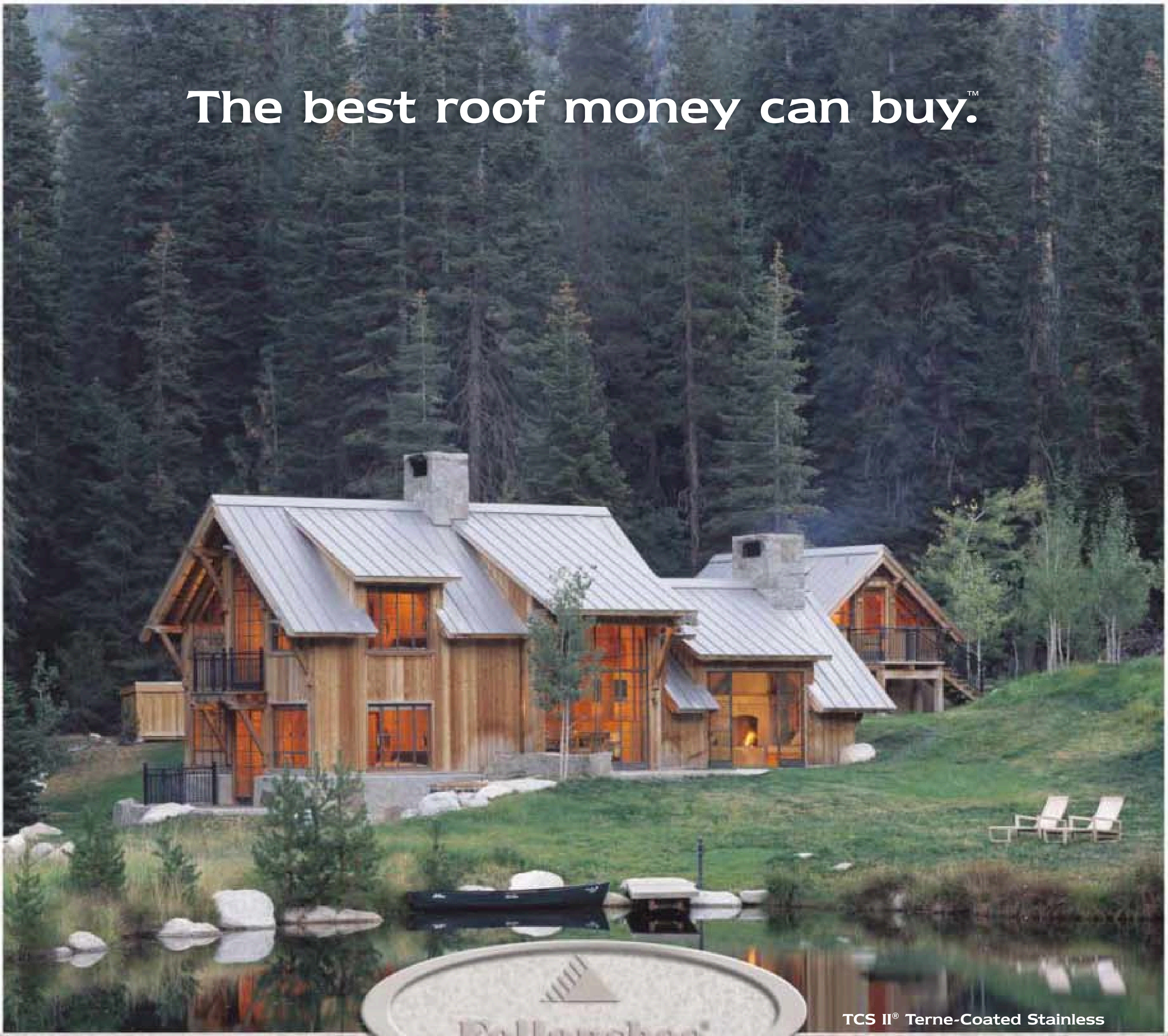

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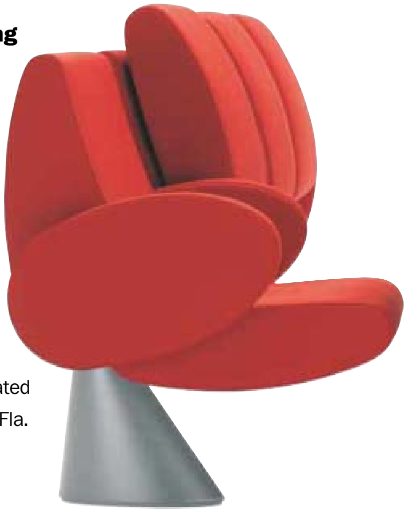
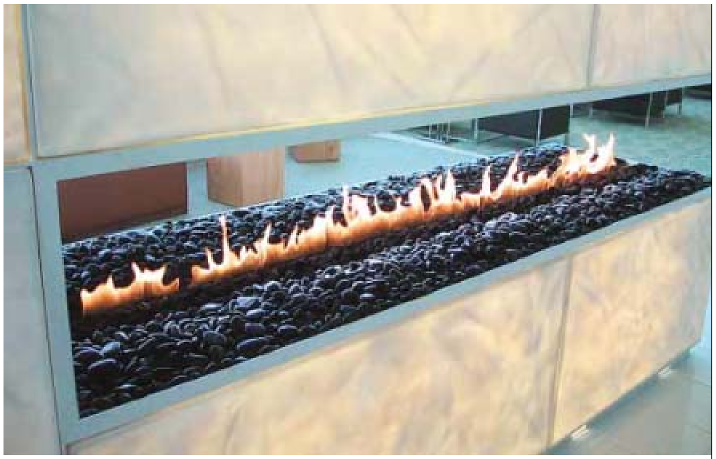


► Compact auditorium seating

By way of a proprietary synchronized mechanism, the seat and arms of the Tulip auditorium seat fold up in unison against the back, forming a compact profile for easy access or exit. A range of row configurations can be specified by joining three, four, or five seat units. Outside backs are available fully upholstered, or in wood or resin, and retractable tablets for writing/laptop use may be incorporated into them. Kron usa, Pompano Beach, Fla. www.kronusa.com **CIRCLE 219**

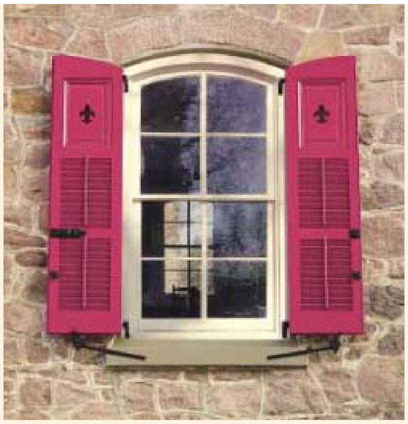


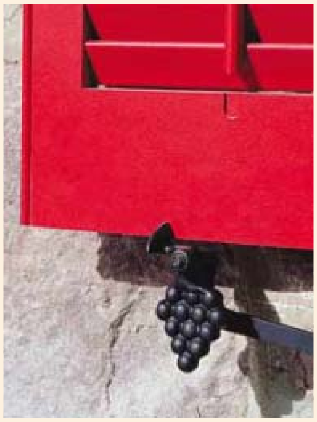
▲ Warming up the lounge

Lumid built this freestanding natural gas fireplace for the Air Canada VIP lounge at Dorval International Airport in Montreal. The 16' x 13' x 1½' fireplace features a steel structure covered with panels of polyester resin and molded fiberglass with a tissue-paperlike texture. The lighting system, hidden behind partitions in the upper and lower parts of the fireplace, feature openings at each end to allow easy access for maintenance. Lumid, Montreal. www.lumid.com **CIRCLE 221**

◄ Solar-powered curtain wall

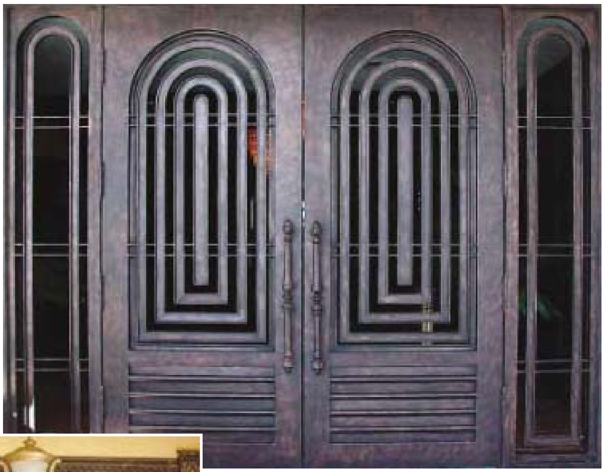
Wausau teamed with Spire Solar Chicago to provide 11,000 square feet of SuperWall system with building-integrated photovoltaic panels for two solar-powered Exelon Pavilions that are part of Chicago's new Millennium Park. The black Minimalist towers, designed by Hammond Beeby Rupert Ainge Architects, integrate solar technology for a self-sustaining energy source. Wausau Window and Wall Systems, Wausau, Wis. www.wausauwindow.com **CIRCLE 222**

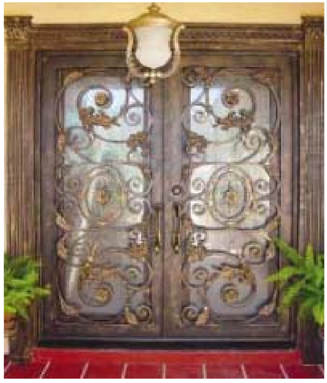




Product of the Month
Timberlane Shutters

Timberlane shutters hang on prestigious buildings around the country, including both the White House Conference Center and the British Embassy's Ambassador's Residence, in Washington, D.C. Each historically accurate Timberlane shutter is handcrafted from solid Western red cedar that has been kiln-dried to reduce the wood's expansion and contraction in weather. Each shutter is assembled using traditional mortise and tenon hardwood peg construction and can be protected with copper capping to prevent water damage. Timberlane offers a variety of outdoor shutter styles, including Panel, Louver, Bermuda, and Board & Batten shutters, and will work with customers to craft exact historical replications of existing shutters. To complement their shutter line, Timberlane offers hand-forged hardware, including Early American slide bolts, pull-rings, and shutter dogs (grape style, top right), in an extensive array of styles, shapes, and sizes. Pictured at top left are Solid Radius Top combination shutters with a fleur-de-lis cutout. Timberlane Woodcrafters, North Wales, Pa. www.timberlane.com CIRCLE 220





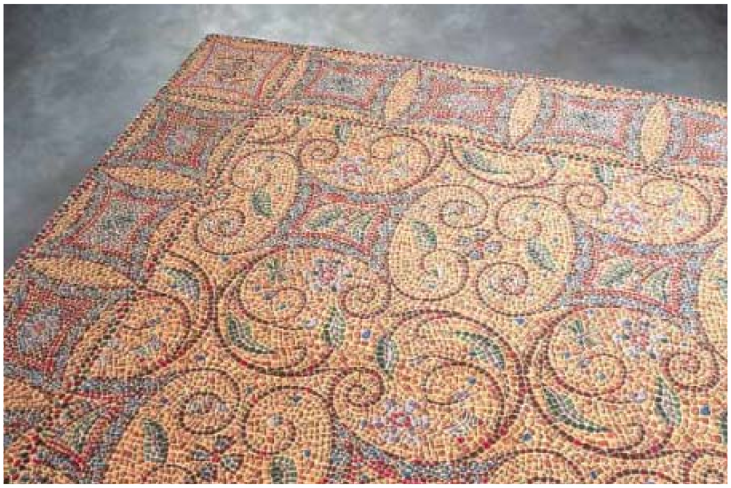
◄▲ Making a grand entrance

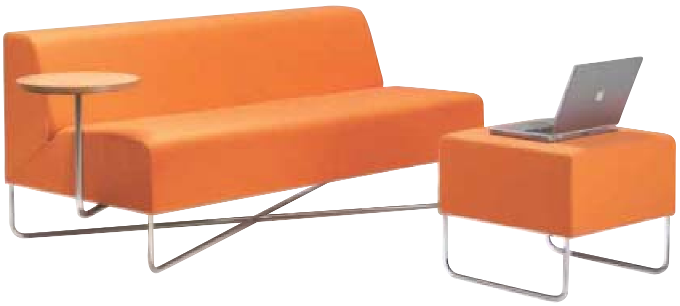
The hand-forged iron doors and entries from Bella Grande Entrances work with a range of home styles, including Mediterranean, Old World Classical, Southwestern, or Contemporary. In addition to double or single entry doors, the company designs and fabricates wine cellar doors/gates, balconies, railings, and garden, courtyard, and estate gates. Each door is 1½" thick, 14-gauge tube steel. Bella Grande Entrances, Las Vegas. www.bellagrandeentrances.com **CIRCLE 223**

Product Briefs

▼ High-definition patterning technology

The Mosaico wool/nylon blend carpet is the first product to showcase Ever, a high-definition patterning technology from Milliken Carpet Hospitality Markets. Fine gradations of shade and visual textures bring a lifelike dimensionality to the brightly colored, stylized mosaic carpet. Ever technology allows for great flexibility in scale, as designs are composed through a system of 36" modular carpets. The new capabilities come from state-of-the-art manufacturing facilities that stretch the length of two football fields. Milliken Carpet, LaGrange, Ga. www.maxbymilliken.com **CIRCLE 224**



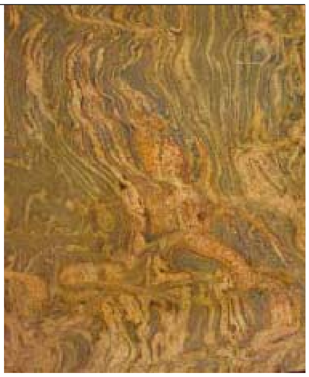


▲ Adding balance to the bedroom or boardroom

Jeffrey Bernett, known for his designs for B&B Italia and Cappellini, now brings his vision to Bernhardt Design. The Balance Collection supports lifestyles where work, home, and play have become more blurred. Consisting of chairs, sofas, benches, ottomans, stools, and tables, the scaled-down pieces feature lightweight frames that permit a range of configurations for hospitality, office, or residential applications. Bernhardt Design, New York City. www.bernhardtdesign.com **CIRCLE 225**

► Indian natural stone

Amsum & Ash is the U.S. subsidiary of Tab India, one of the largest natural-stone-processing companies in the world. Tab processes Indian marble, granite, slate, quartz, limestone, and sandstone into tiles, slabs, and mosaics. Tab's quarries exclusively produce Golden Juparana granite (right), a dramatic stone from Southern India. Amsum & Ash, Tab India, Minneapolis. www.tabindia.com **CIRCLE 226**



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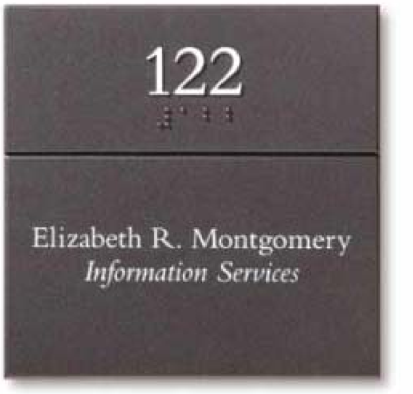

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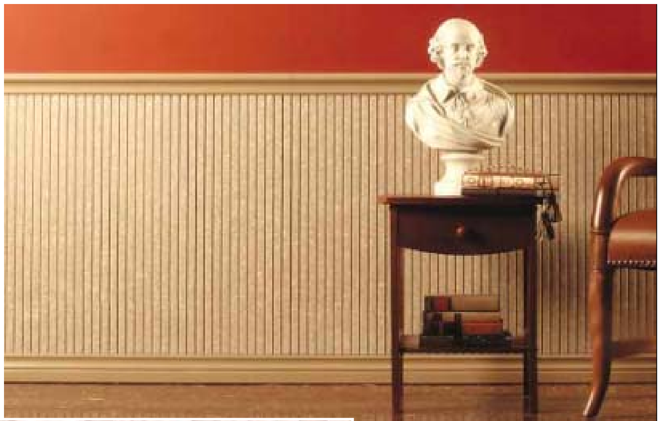


▲ Stone-based wall tile

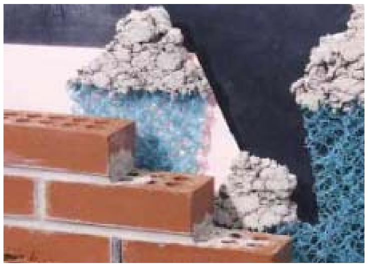
Fritz Industries, a manufacturer of genuine marble and granite terrazzo floor tile, has introduced the Fritztile 6100 fluted wall tile and 6200 brick wall tile series. Two new patterns, fluted and brick, use marbles and granites and offer a hand-chiseled appearance. The brick style has the extra detail of having several different mortar colors that can be selected as inlaid color. The tiles measure approximately 12" x 12" in a ¼" thickness. The colors available range from black, white, and cream to pink, green, and gold. The tile comes with a 20-year wear warranty. Fritztile, Mesquite, Tex. www.fritztile.com **CIRCLE 227**

▼ Tough topping

Floric Polytech MT-200 Microtopping is a thin-section cementitious polymeric floor surfacing that is less moisture sensitive than conventional sheet and tile flooring systems and provides a wear-resistant finish for both interior and exterior surfaces. The topping can be applied over concrete, brick, metal, and masonry, and can be antiqued or chemically stained with Floris Polytech ChromaStain. 866/4-FLORIC. Floric Polytech, Rancho Cucamonga, Calif. **CIRCLE 228**

▼ Improving cavity wall drainage

After testing revealed straight-strip products inhibit air flow into and moisture flow out of weep holes, Mortar Net discontinued the company's Mortar Mitt straight-strip product. The dovetail design of Mortar Net's standard product was found to be more effective for cavity wall drainage than straight strip. The testing also inspired Mortar Net to redesign its Weep Vent product to improve air flow. Weep Vents block insects and debris while allowing moisture to escape. Mortar Net, Gary, Ind. www.mortarnet.com **CIRCLE 229**



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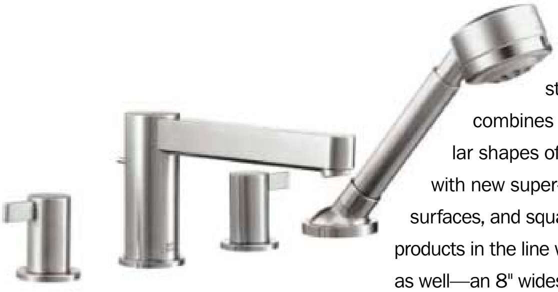
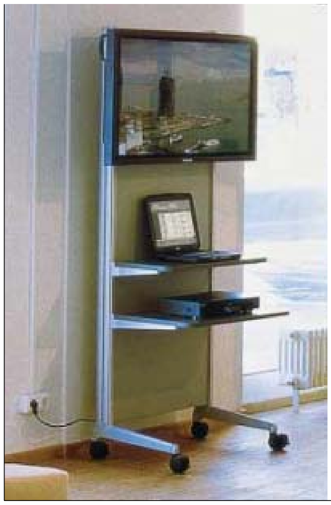


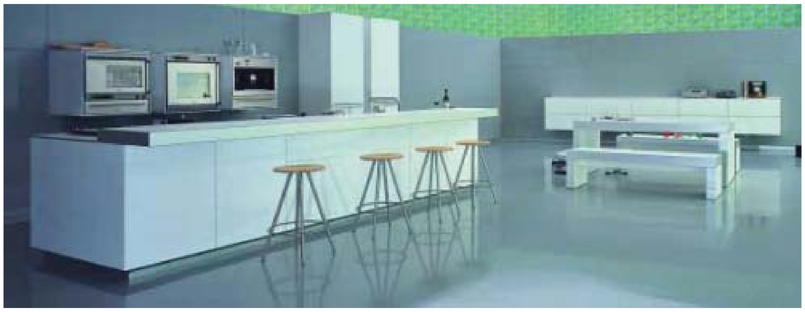
▲ Squaring off the line

Hansgrohe has launched a complete redesign of its Axor Steel collection of stainless-steel bath and kitchen faucets, shower products, and accessories. The streamlined new look combines the curves and circular shapes of the earlier version with new super-straight lines, flat surfaces, and square angles. Two new products in the line will now be available as well—an 8" widespread lavatory faucet and a wall-mounted model. Accessories include towel bars, towel rings, lotion dispenser, soap dish and tumbler, and a robe hook. Hansgrohe, Alpharetta, Ga. www.hansgrohe-usa.com **CIRCLE 230**



◄ Mobile monitor support

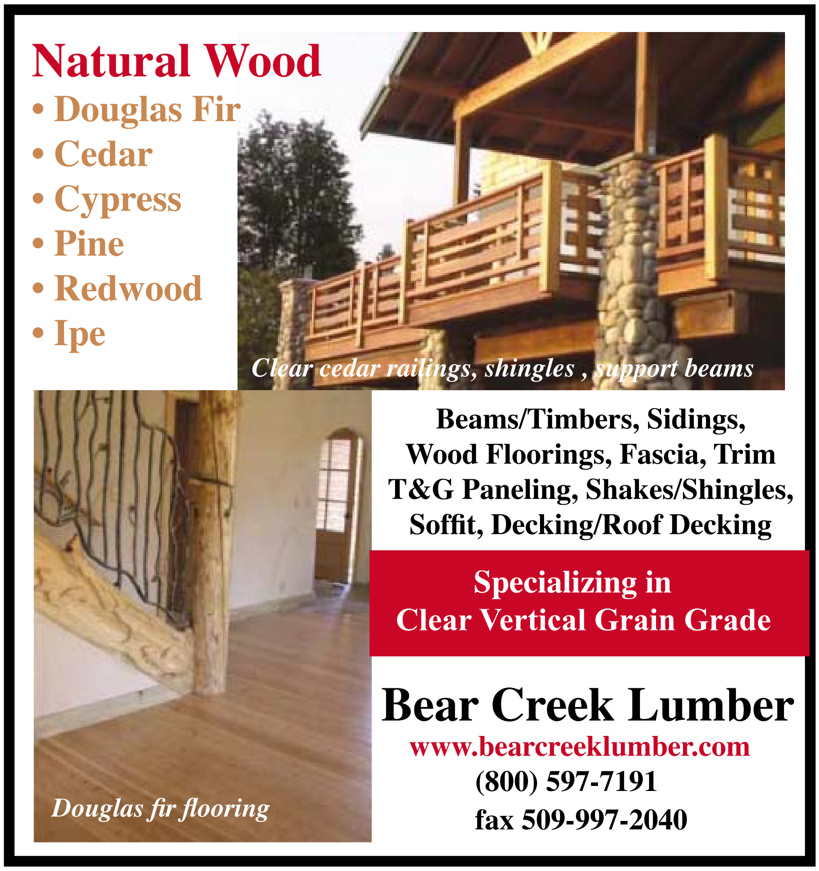
Media Mount Communicator and FreeWall Plasma monitor-support furniture each positions a slender, wide-screen plasma monitor on a movable vertical furniture stand. The products accommodate the audiovisual support and video teleconferencing needs of today's thin-profile plasma monitors, without being bound to one wall or to one room. Both models accommodate up to a 52" customer-supplied plasma monitor from LG, NEC, Panasonic, Pioneer, Sony, or other manufacturers. Vecta, Grand Prairie, Tex. www.vecta.com **CIRCLE 231**



◄ Bringing the kitchen to new heights

Bulthaup's new b3 kitchen concept is based on a wall system that allows cabinets and functional elements to be inserted directly into the architecture of the kitchen, moving even heavy appliances off of the floor and allowing them to hang "weightlessly" from the wall. The supporting wall can be attached to any stable substrate, including wood, concrete, or brick. A selection of interchangeable panels, available in laminate, lacquer, glass, anodized aluminum, bamboo, and other materials, are available in lengths up to approximately 9'. With b3, Bulthaup is the first to offer a 1⁄10"-thick stone worktop to the market. Bulthaup, Los Angeles. www.bulthaup.com **CIRCLE 232**

For more information, circle item numbers on Reader Service Card or go to www.archrecord.com, under Resources, then Reader Service.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Design: Noise 13, Photo: Daniel R. Cauterucci

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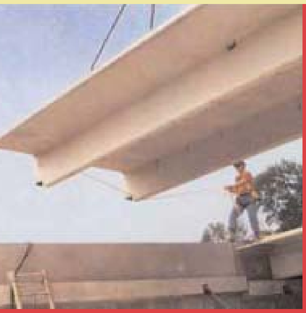

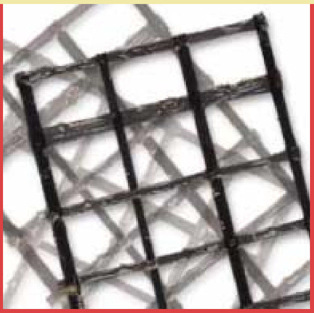

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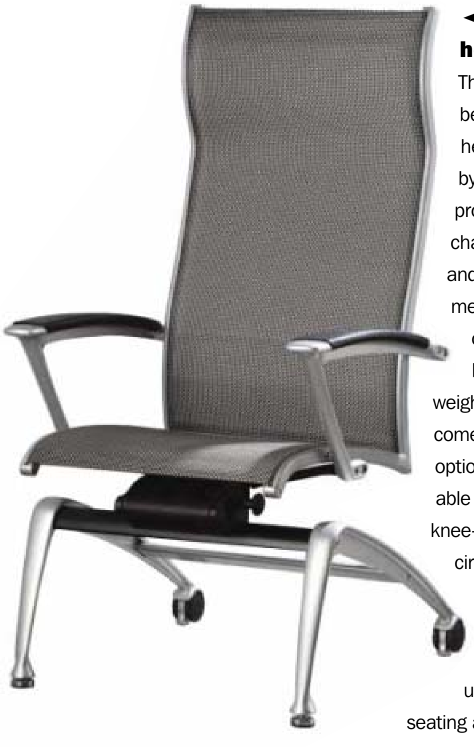

◄ Easier to clean health-care seating

Thonet's CX seating line has been designed primarily for health-care facilities. The design, by John Caldwell, features rust-proof hardware to enable the chair to withstand steam cleaning and the only field-replaceable mesh and upholstered seat sling option that can be performed by in-house staff. The lightweight, polished-aluminum frame comes standard, and powder-coat options are available. The nonstackable version of the chair includes a knee-tilt mechanism option to aid circulation, and an integrated rear glide/caster to allow for ease of movement. The competitively priced design can be used in patient rooms and public seating applications. Thonet, St. Louis. www.thonet.com **CIRCLE 233**

▲ Haven from the status quo

Wolf-Gordon has released the Haven Collection, the second group of wallcoverings from its Haven binder for contract interiors. The collection, designed by Patty Madden, includes 18 printed patterns, ranging in style from natural shapes to geometrics and mosaics. More patterns will be added to the binder in the future, and all are type II, 21-ounce material with either a woven scrim textile or nonwoven backing. Wolf-Gordon, Long Island City, N.Y. www.wolf-gordon.com **CIRCLE 234**

▼ Another landmark job

Traco will manufacture more than 1,000 replacement windows for the 1902 Flatiron Building in New York City. The company will custom design TR-9000 heavy commercial AAMA-grade double-hung windows for the historic steel-frame tower. Traco's other landmark projects include the Empire State Building and the crown of the Statue of Liberty. Traco, Cranberry Township, Pa. www.traco.com **CIRCLE 235**

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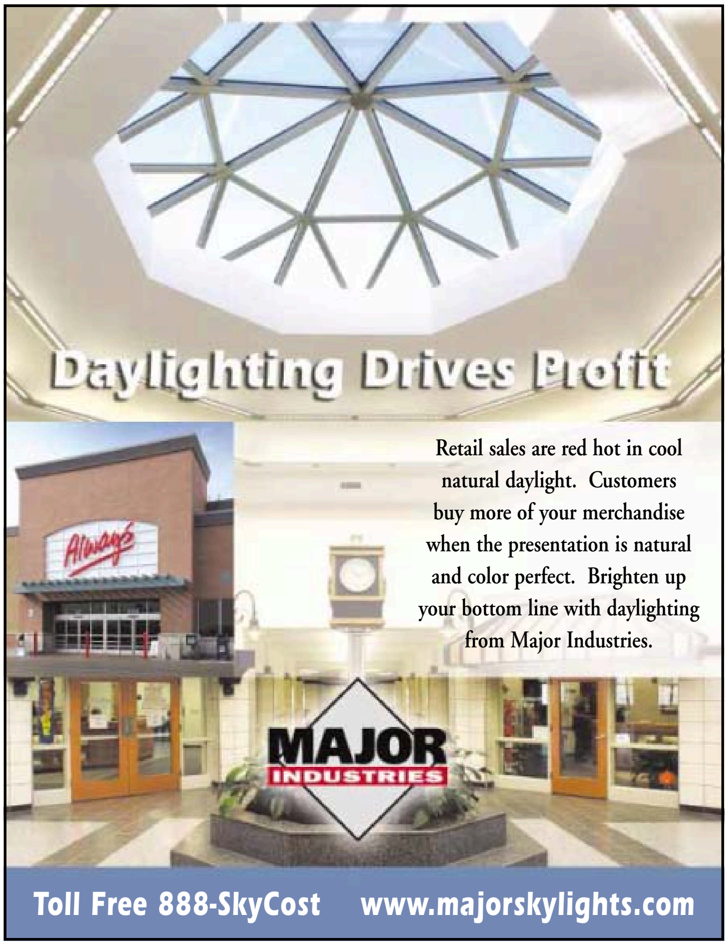

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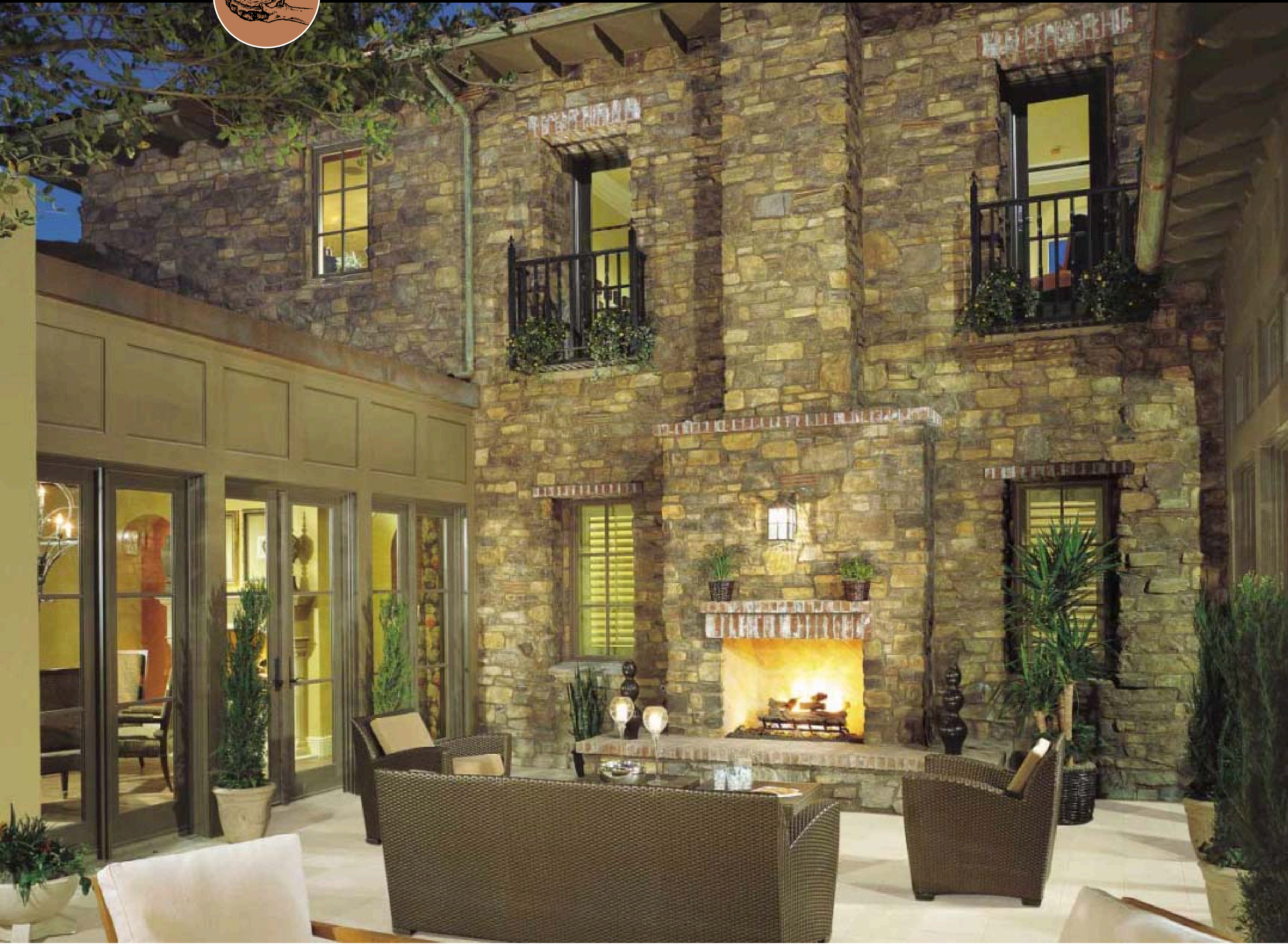

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Product Literature

Concrete color chart

The *Color Chart A-312.11 for Chromix Admixtures for Color-Conditioned Concrete* doubles the number of chips available in the previous color-card and hard-sample sets. More than 400 custom colors are available by special order. L.M. Scofield, Los Angeles. www.scofield.com **CIRCLE 236**

Carpet color box

Milliken Hospitality Carpet interviewed designers before revamping its new Color Box, adding colors and organizing them by color family for ease of use. The carpet samples are magnetized for easy display on the companion magnetic clipboard. Milliken Carpet, LaGrange, Ga. www.maxbymilliken.com **CIRCLE 237**

Plumbing product guides

A new full-color binder, titled the *Sloan Architectural Design Guide*, is now available from Sloan Valve. The guide offers the latest information on Sloan's water-conserving plumbing products and systems, details on system applications in a variety of markets, and applicable information on LEED. Descriptions, color photos, diagrams, and information on special finishes are provided for a range of water-saving plumbing systems, including electronic and manual flushometers and faucets, sinks, accessories, and Sloan's new waterfree urinals. Sloan has also introduced a 42-page specification catalog on the Polaris manual faucet line. The catalog contains specs and product information for more than 35 Sloan Polaris manual faucet models. Sloan Valve, Franklin Park, Ill. www.sloanvalve.com **CIRCLE 238**

NEW SITES FOR CYBERSURFING

Revamped site for Italian ceramic tile.
www.improntaitalgraniti-usa.com

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Product Literature

Safety products brochure

The Bilco Company offers a new brochure on the Bil-Guard Hatch Railing System and LadderUP Safety Post architectural safety products. The brochure includes features and benefits, product specifications, model information, and application images. Bil-Guard is a fixed railing system that provides a permanent means of fall protection for hatch openings, while LadderUP Safety Post is an extensive device for fixed ladders, allowing workers safe entrance and egress from roof hatches, manholes, or floor, vault, and sidewalk doors. The Bilco Company, West Haven. www.bilco.com **CIRCLE 239**

Kitchen cabinet styles

Four diverse collections of kitchen cabinetry—International Style, Modern Classics, Traditional Designs, or Timeless Classics—are featured in *A Kitchen for Every Lifestyle,* a new brochure available from SieMatic. SieMatic America Group, Bensalem, Pa. www.siematic.com **CIRCLE 240**

Connectivity solutions

Vecta offers a new brochure detailing the Plug-n-Play collection of power and data connectivity solutions. The 16-page full-color brochure highlights Vecta's portfolio of modular and handwired connectivity solutions designed to meet today's intensive multimedia needs. Vecta, Grand Prairie, Tex. www.vecta.com **CIRCLE 241**

Cultured stone visualization

Owens Corning, the makers of Cultured Stone–brand stone veneer, has released an upgrade to its StoneCAD software. The software is the only veneer-stone visualization program to provide hatch patterns and texture maps of every color and texture in the product line. The program includes a photo gallery with hundreds of examples catalogued by usage and type of product. Owens Corning, Toledo. www.culturedstone.com **CIRCLE 242**

Lighting catalog supplement

In conjunction with its 20th anniversary and the introduction of hundreds of new designs, W.A.C. Lighting has unveiled a catalog supplement that features new QuickConnect pendants and fixtures, undercabinet lighting, and Beauty Spot accent luminaires. W.A.C. Lighting, Garden City, N.Y. www.waclighting.com **CIRCLE 243**

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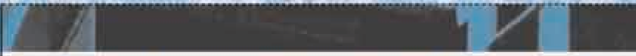

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TO RECEIVE INFORMATION PLEASE ANSWER ALL QUESTIONS

1. What is your job function? (check one)

- ☐ (1) Architect
- ☐ (2) Engineer
- ☐ (3) Designer
- ☐ (4) Specification Writer
- ☐ (5) Interior Designer
- ☐ (6) Contractor or Builder
- ☐ (7) Lighting Designer
- ☐ (8) Other ____________

2. In what type of organization do you work?

- ☐ (9) Architectural or A/E Firm
- ☐ (10) Commercial, Industrial or Institutional
- ☐ (11) Contractor or Builder
- ☐ (12) Government Agency
- ☐ (13) Interior Design
- ☐ (14) Lighting Design
- ☐ (15) Other ____________

3. Building Types you are currently working on?

- ☐ (16) Commercial
- ☐ (17) Educational
- ☐ (18) Healthcare
- ☐ (19) Industrial
- ☐ (20) Multi-Family Residential
- ☐ (21) Single-Family Residential
- ☐ (22) Other ____________

4. Reason for Inquiry?

- ☐ (23) Current Planning
- ☐ (24) Future Planning
- ☐ (25) Both

5. Are you currently a subscriber?

☐ (26) Yes ☐ (27) No

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- ☐ **(30) 1 year $199.00 (International: outside of North America)**

CAR37DRS/CAR37CRS/CAR37MRS/CAR37FRS

November 2004 Issue

The McGraw·Hill Companies

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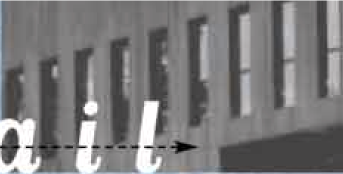

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Telephone ( ) ____________________ Fax ( ) ____________________

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November 2004 Issue

ARCHITECTURAL RECORD

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Program title: **"Laminated glass with a Polyvinyl Butyral (PVB) interlayer: Keeping unwanted noise at bay," sponsored by Solutia Inc. and Arch Aluminum & Glass Co., Inc., (11/04, page 263)** **14SPONL**

AIA/CES Credit: This article will earn you one AIA/CES LU hour of health safety welfare credit. (Valid for credit through November 2006)
Directions: Select one answer for each question in the exam and completely circle appropriate letter. A minimum score of 70% is required to earn credit.

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10. a b c d

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Material resources used: Article: This article addresses issues concerning health and safety.

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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Program title: **"Performance override: Door specifications meet the 'real world'," sponsored by WDMA, (11/04, page 269)** **114SPONM**

AIA/CES Credit: This article will earn you one AIA/CES LU hour of health safety welfare credit. (Valid for credit through November 2006)
Directions: Select one answer for each question in the exam and completely circle appropriate letter. A minimum score of 70% is required to earn credit.

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Cooper Lighting

Floodlights

10 Specialties

The Lumiere Monaco 6000 family of small-scale, HID in-ground floodlights (39 W-175 W), for architectural/commercial applications, utilizes the Venterra™ heat and water management system, providing reduced lens temperatures and protection from the outdoor elements. Lumiere's exclusive Beam-Driver™ aiming system provides easy, precision aiming. The internal lamp module tilts 0° to15° and rotates a complete 360°. Drive-over rated to 5,000-lb. Visit Cooper Lighting's web site for more information. Email talktous@cooperlighting.com.

www.lumierelighting.com

150

Selux Corporation

Floodlighting Systems 800-735-8927

10 Specialties

SELUX is proud to introduce SILL PRO Series Floodlights, the result of a partnership between world renowned SILL Lighting and SELUX Corporation. SILL PRO Series represents a pinnacle of first class spot/flood lighting technology coupled with design integrity and excellent spec features. SELUX is offering these systems in three sizes with a wide range of lamping, lenses, filters, and shieldings to choose from. Cardanic systems (featured in top photo) give complete flexibility allowing multiple fixtures to be mounted together with each fixture aimed in any direction. Fixture housings are manufactured of quality pressure die cast aluminum. All fixtures are IP 67 rated.

www.selux.com/usa

153

G Squared

Ceiling Fans

10 Specialties

Enjoy art. The Cirque ceiling fan, a high performance dynamic sculpture is a Good Design Award winner. View silver and mahogany blade versions on their Web site. Includes a 50 W dimmable light and touch control system, and a remote control is available. Whisper quiet, powerful, and beautifully made, this timeless design can be used on 8-ft. ceilings or on cathedral ceilings with optional downrods up to 6-ft. long. It is also suitable for sloped ceilings. Lifetime warranty. To buy high-design architectural fans and lighting, please visit G Squared's Web site or call between 6 AM and 6 PM PST.

151

Ledalite Architectural Products

Lighting Systems

PURE FX™
with MesoOptics®
2X2
1X4
6"X4
2X4

15 Mechanical

PureFX™ is a revolutionary recessed lighting system that utilizes Ledalite's MesoOptics® technology to purify and control light. It offers the perfect blend of brightness, control, and energy efficiency—making happier people and a healthier environment. Visit the Ledalite Web site for more information and to view the PureFX multimedia presentation.

www.ledalite.com

154

Luraline Products Company

Lighting Fixtures 800-940-6588

10 Specialties

The Helos family of lighting fixtures from Luraline Products Company features a classic industrial design, enhanced by extraordinary durability and energy efficiency that make it ideal for industrial and commercial applications. The series is offered in a coordinated collection of pendant, ceiling, wall, and post mount configurations. Helos is offered with a choice of incandescent or energy-efficient compact fluorescent or HID lamping. A full palette of painted and metallic finishes is available, as well as custom colors on request. Fixtures in the series are suitable for interior or exterior applications. Shown is the Helos wall mount in Faceted Silver finish. For more information, please call the company or visit the Web site.

www.luraline.com

152

Engineered Lighting Products

Compact Downlights 626-579-0943

16 Electrical

New "Hole in the Ceiling" Downlights. These innovative fixtures utilize compact fluorescent, incandescent, or metal halide lamps. The GRG (fiberglass reinforced gypsum) casting has integral electrical components, which are accessible through the bottom of the fixture. Installed, it looks like a custom formed drywall light niche that blends with any interior motif. UL/CUL listed.

155

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Prima Lighting Corp.

Light Fixtures 866-885-4915

16 Electrical

The Multi light fixture series gives you complete freedom and control over your light source with high-end, elegant, and intriguing style. Easily direct the light exactly where you want and tailor the power to your needs. Choose a nine, six, four, three, or two light configuration available as a wall (shown), pendant, floor, or table light. Chrome and matte silver finishes. Clean, architectural multipoint canopies are available for the pendants. Please visit Prima Lighting's Web site or call to find out more about its breakthrough OPUS line of contemporary architectural lighting.

www.primalighting.com 156

Cherry Tree Design

Stock & Custom Doors 800-634-3268

8 Doors & windows

Experience the artisan touch—sophisticated design, exceptional craftsmanship, natural warmth. Stock and Custom pocket doors, passage doors, room dividers, window coverings, closet doors—made in Shoji Style. Hardwood lighting and mirrors featuring contemporary, Arts & Crafts, and Asian styling. Hand-crafted in the USA using unsurpassed joinery, solid hardwoods, and beautiful durable facings. Perfect for commercial, hospitality, and residential projects. To learn more about Cherry Tree Design's complete product line, call their toll free number.

www.cherrytreedesign.com 159

Primelite Manufacturing Corp.

Hanging Light Fixtures

16 Electrical

Globes available in glass, polyethylene, acrylic, and polycarbonate. Diameters from 6-in. to 36-in. Chain, cord, and stem suspensions are available in custom stem lengths to meet your specifications. Primelite also carries decorative outdoor fixtures. Sign and task lighting. Custom types of heads and arm bends are available in all aluminum parts. Indoor wall sconces and a wide selection of children's fixtures. Hanging prismatic fixtures available in 12-in., 19-in., 22-in., and 26-in. diameters, with or without cages. All fixtures can be made for incandescent, metal halide, high-pressure sodium, and PL bulbs. Metal parts are powdercoated; wide selection of colors to choose from. Fixtures can be designed to meet your specifications. Fax number 516-868-4609.

www.Primelite-MFG.com 157

FAAC International, Inc.

Invisible Swing Gate Operators

UL 325
Model 760

2 Site construction

FAAC is the world's largest specialized manufacturer of hydraulic operators for swing, slide, and barrier gate systems. The Model 760 hydraulic swing gate operator is designed specifically for in-ground installation for residential applications. Its power, reliability, and invisibility make the 760 ideal for large ornate gates. For more information on the 760 and other FAAC products, visit the Web site.

www.faacusa.com 160

EPIC Metals Corporation

Roof and Floor Deck Ceiling Systems 877-696-3742

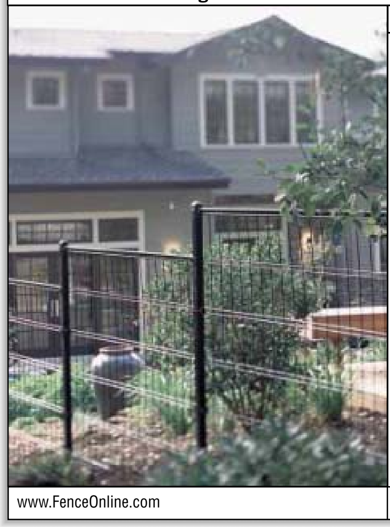
5 Metals

EPIC Metals Skydeck™ option was designed to incorporate natural lighting into structural, long-span roof deck ceiling systems without the need for additional steel framing. By featuring Solatube® technologies, the EPIC Skydeck option provides the brightest, cleanest, and whitest light possible while minimizing solar heat gain and glare. Skydeck supports green building philosophies by reducing the need for electrical lighting and conserving energy costs that contribute to LEED certification. Additionally, Skydeck can be specified with an acoustical option to reduce interior ambient noise levels, can span up to 55-ft., and has a variety of appearance options to complement any architectural design.

www.epicmetals.com 158

Master Halco, Inc.

Decorative Wire Fencing



2 Site construction

New EuroScape™ 300 Decorative Wire fencing incorporates some of the best design elements of industry-leading ornamental iron and color chain-link. Its steel and wire mesh construction in a special twin wire design creates unique joint strength and durability. EuroScape 300 is available in four colors: tan, bronze, white, and black. Decorative wire fencing complements a variety of architectural styles and is backed by a 12-year limited warranty. With more than 60 locations across North America, Master Halco has the products and services to satisfy your project requirements. Visit the Web site to view extensive product offering and download specifications and drawings. (Black decorative wire fencing as seen in the 2003 Sunset Idea House.)

www.FenceOnline.com 161

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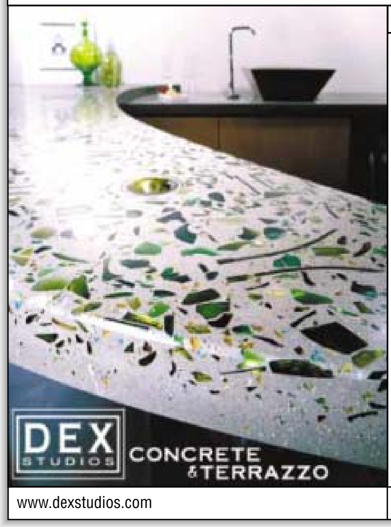
DEX Studios

Terrazzo & Concrete | **404-753-0600**



3 Concrete

DEX manufacturers precast architectural concrete and terrazzo products for commercial, multi-unit, and residential applications. Superior finishes and colors in both cast concrete and terrazzo are available in sinks, bathtubs, shower pans, tile, bar and countertops, tabletops, fireplaces, and tilt-up wall panels. All DEX products are pre-cast in a controlled environment, polished to a hard dense finish, and sealed to enhance depth and protect the finished product. Sample boards of 25 spectacular concrete colors and 10 standard terrazzo finishes available. DEX has a combined total of 50 designs and sizes of sinks, all standardized with several ADA compliant designs to make specifying them easy.

www.dexstudios.com 162

Vermont Structural Slate Company

Slates, Quartzites, Sandstones & Limestones | **800-343-1900**

4 Masonry

For almost 150 years, Vermont Structural Slate Company has quarried and fabricated top-quality natural Vermont slates, producing all types of architectural, flooring, and roofing slate products. They complement their range of local materials with unique slates, quartzites, sandstones, and limestones from around the world. They specialize in architectural projects and can help architects evaluate, detail, and specify natural stone. Call them for their brochure and samples or visit the Web site.

www.vermontstructuralslate.com 165

L. M. Scofield Company

Concrete Coloring Admixture | **800-800-9900**

3 Concrete

CHROMIX® Admixtures for Color-Conditioned™ Concrete: Award-winning projects begin with award-winning materials. CHROMIX Admixtures for Color-Conditioned Concrete are colored, water-reducing, set-controlling admixtures for ready mixed architectural concrete. Coloring concrete integrally, they produce rich hardscapes and precast, tilt-up, or cast-in-place buildings of enduring beauty. CHROMIX Admixtures provide permanent, streak-free color conditioning and increased concrete strength at all ages. Call or email to request color cards and specifications. Email info@scofield.com.

www.scofield.com 163

ATAS International, Inc.

PC Standing Seam Metal Roof System

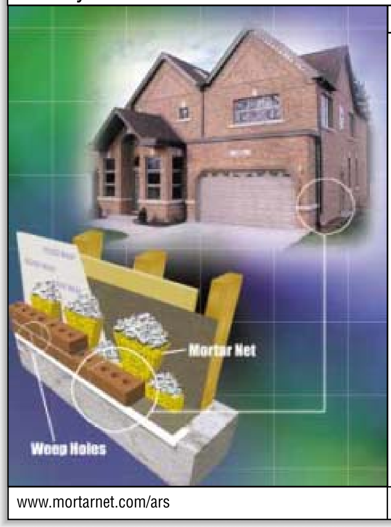
5 Metals

ATAS International's PC Standing Seam Metal Roof System consists of two parts: the panel, and a choice of either a seam or batten strip that is snapped over the clips and fasteners, concealing the fastening system. The PC Systems are not structural panels and must be applied to a solid underlayment. ATAS International, Inc. Dutch Standing Seam is an architectural and structural standing seam panel with the UL 90 wind uplift rating. The panels are installed with concealed clips and fasteners and may be installed over solid substrate or directly over open framing. Dutch Seam has a PVDF or anodized finish.

www.atas.com 166

Mortar Net USA, Ltd.

Masonry Accessories



4 Masonry

Properly constructed cavity walls are the first step to ensure that your masonry home is dry and free from water damage and mold. During construction, mortar droppings can block weep holes, trapping water inside the cavity, creating long-term moisture problems. Mortar Net® Residential provides the solution for clogged weep holes by breaking up mortar on two levels allowing water to freely drain to the weeps. Mortar Net Residential's patented shape helps eliminate water problems to interior walls and prevents efflorescence and damage caused by freeze/thaw cycles. Used with Mortar Net Weep Vents, Mortar Net Residential forms a complete water drainage system.

www.mortarnet.com/ars 164

HDI Railing Systems

Pre-Engineered Stainless Railings | **717-285-4088**

5 Metals

CIRCUM™ stainless railing system: Manufactured of corrosion-resistant stainless steel, CIRCUM is ideal for interior or exterior applications in commercial and residential facilities. Infill materials available in perforated stainless steel, tempered glass, and stainless steel rods. Handrails in wood/stainless, stainless, or colored nylon. Curved rails and custom designs are available. Complete supply and installation service is available throughout North America, which includes *inox*™. CIRCUM™, HEWI® Nylon, and d line™ railing systems. Email info@hdirailings.com.

www.hdirailings.com 167

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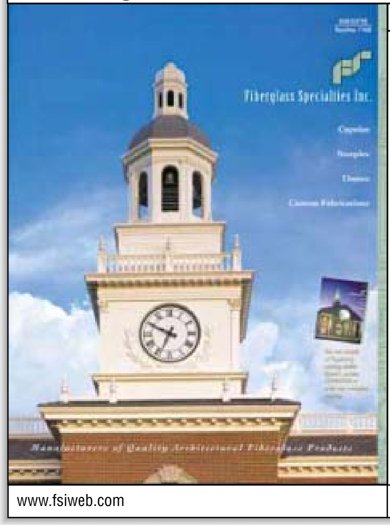
Fiberglass Specialties, Inc.

Custom Fiberglass Products


Fiberglass Specialties Inc.
Cupolas
Steeples
Domes
Custom Fabrications
Manufacturers of Quality Architectural Fiberglass Products

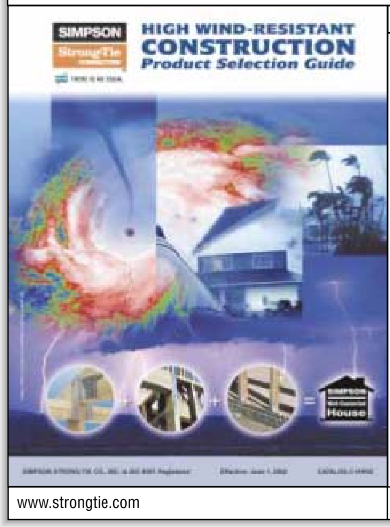
6 Wood & plastics

Fiberglass Specialties Inc. manufactures custom architectural products from FRP fiberglass. Custom products are often less than stick-built structures and arrive at the job site pre-ready to install. 2004 projects range from the replication of a 130-ft. historical lighthouse (with a full size cellular tower inside) to a custom cupola with a unique analog wind gage for a residential application. Each custom structure is designed around a tubular steel unitized body with architectural FRP panels affixed. Almost any size, shape, or texture can be replicated. Custom colors are available, and because they use low styrenge gel coats, yellowing, fading, and chalking are minimal. In-house architect (AIA) and design engineers are available.

www.fsiweb.com 168

Simpson Strong-Tie Co., Inc.

Wood Structural Connectors Guide



6 Wood & plastics

High Wind-Resistant Construction, a product selection guide for wood structural connectors, shows installation drawings, load tables, and fastener schedules for products appropriate for high wind areas. Truss bracing and girder/truss to masonry/concrete connectors are identified with drawings showing appropriate installation. The booklet contains updated loads on products to comply with IBC/2000 and ASCE 7-98 provisions relating to allowable increases for steel. Simpson Strong-Wall® shearwall information is included in this concise and useful guide. To view this guide, visit www.strongtie.com and click on literature/catalogs, then on connectors-specialty catalogs and scroll to the C-HW02.

www.strongtie.com 171

Melton Classics, Inc.

Architectural Products

6 Wood & plastics

Melton Classics provides the design professional with the most comprehensive selection of quality architectural products in the industry, including architectural columns, balustrades, moldings, cornices, and a wide array of architectural elements. Architectural columns are available plain or fluted, load-bearing or column covers, round or square in fiberglass, fiberglass/marble composite, synthetic stone, cast stone, GFRC, and wood for paint or stain. Melton Classics offers a maintenance free balustrade product ideal for any application. Balustrades are available in four durable materials: MarbleTex™ synthetic stone, poly/marble composite, cast stone, and polyurethane, and can meet any code or radius application.

www.meltonclassics.com 169

Polyglass

Tile Roofing Underlayment

POLYGLASS
POLYSTICK
POLYGLASS

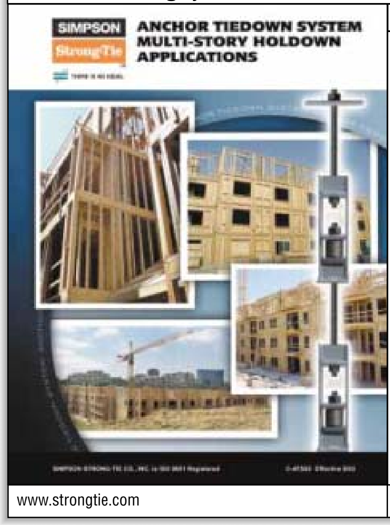
7 Thermal & moisture protection

Polyglass offers Polystick TU Plus™, a high quality, skid resistant tile roofing underlayment that is formulated to withstand heat up to 260 degrees Fahrenheit. TU Plus is manufactured using patented ADESO™ technology, a "true" APP compound, glass fiber reinforced, with a high strength polyester fabric on the upper surface and aggressive self-adhesive compound on the bottom.

www.polyglass.com 172

Simpson Strong-Tie Co., Inc.

Shearwall Anchoring Systems 800-999-5099



6 Wood & plastics

For multistory commercial buildings or apartment houses, Simpson's ATS (anchor tiedown system) provides an improved method for anchoring shearwalls to resist uplift forces caused by earthquakes and high winds. The patented concentric holdown system integrates vertical load resisting hardware easily and economically into standard wood frame construction up to five stories high. Anchor tiedown system features high load capacity, fast installation, no horizontal drilling, and take-up of 1-in. of wood shrinkage and compression per floor. It can be installed allowing rod offset up to 1-3/4-in. maximum per floor. Code recognized by ICBO (ER-5090) and COLA (RR-25326).

www.strongtie.com 170

Artistic Doors & Windows

Fire-Rated Wooden Doors

8 Doors & windows

Artistic Doors and Windows is committed to providing full service for its customers. It now offers TRUE STILE & RAIL fire doors in ratings of 20-, 45-, 60-, and 90-min., at only 1-3/4-in. thick (patent pending). They include flat or raised, single or multiple panels and glass lites. The company is certified to 3-ft.-6-in. by 9-ft. for single swing and 7-ft. by 9-ft. for pairs, all with its own rated wooden jambs. Add in Artistic Doors and Windows' Exclusive Retaining Hardware and see what sets it apart from the competition.

www.artisticdoorsandwindows.com 173

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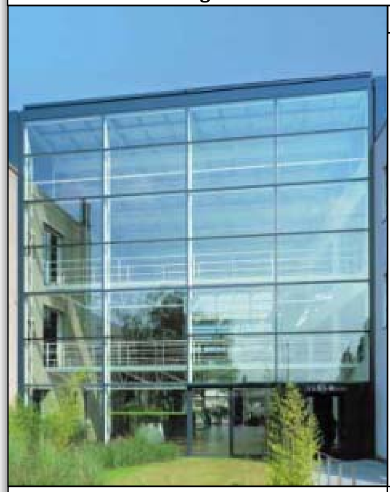
Technical Glass Products

Fire-Rated Steel Framing



8 Doors & windows

Technical Glass Products offers the Fireframes™ Curtainwall Series—fire-rated steel framing for large expanses of glass spanning multiple stories. Available for interior or exterior use, the Curtainwall Series carries fire ratings up to two hours. Custom exterior face caps allow a wide variety of appearances, including stainless steel. For more information visit the company's Web site.

www.fireglass.com ⟳ 174

Teragren LLC

Bamboo Flooring, Panels & Veneer 800-929-6333

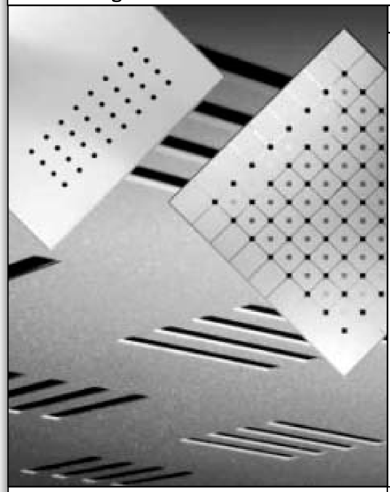
9 Finishes

Teragren manufactures beautiful, durable, renewable interior bamboo solid strip and wide plank flooring, stair components, panels and veneer. Featured in the Hyatt Maui, Timberland stores, Seattle Central Public Library, and other commercial and residential installations nationwide. 25% harder than oak and 2-1/2 times more stable than maple. Available in two grains and colors. Contributes to LEED™ as a rapidly renewable resource and low-emitting material. Coating materials water-based, solvent-free. 25-year residential and 5-year commercial finish warranties. Visit the company's Web site for more information. Contact Teragren for samples and/or brochure.

www.teragren.com ⟳ 177

Gage Corporation, Intl.

Metal Ceilings 800-786-4243



9 Finishes

The new standard for perforated metal ceilings. Gage introduces its new 700 series of perforated metal ceilings manufactured from 50% recycled aluminum. Standard designs include five distinctive finishes and 14 different perforation patterns. Selective and custom designs are also available. Contact the Gage factory for literature and samples.

www.gageceilings.com ⟳ 175

Viva Ceramica

Xilo Flooring

9 Finishes

Colors meet the purest clays forged and pre-compacted in a higher than normal thickness (12mm). Complete penetration between body and color grants lasting optical results, maximum ultimate tensile strength, and absolute resistance to acids, scratches, frost, and dirt. This totally environmentally friendly manufacturing process is assured by ISO9001 quality system. Certified plant of E milceramica in Fiorano Modenese; series XILO is guaranteed 20 years for private homes and 10 years for public areas. For further information please consult Viva for updated price list and sales conditions.

www.cerviva.it ⟳ 178

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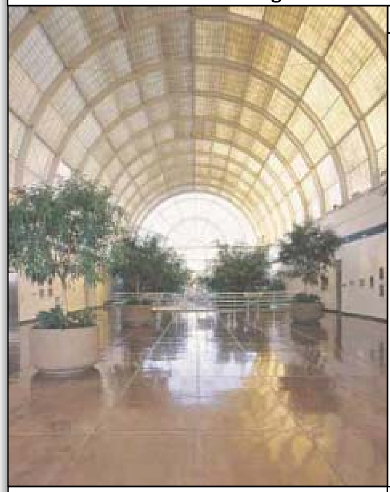
Concrete & Cementitious Flooring 800-800-9900



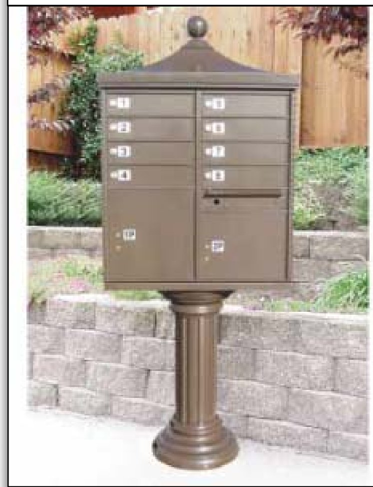
9 Finishes

Stylish Scofield flooring systems: For beauty and durability, concrete and cementitious toppings provide stylish flooring for high traffic areas in offices, lobbies, public spaces, food service, and retail areas. Scofield Systems offer diverse choices—ranging from monochromatic toppings to translucent, antique stains for faux finishes and dramatic graphics. Email info@scofield.com.

www.scofield.com ⟳ 176

Custom Home Accessories, Inc.

Decorative Cluster Mailboxes



10 Specialties

Tired of the same old ugly gang style mailboxes? Give your community some "curb appeal" with the new Regency decorative cluster mailbox unit. Constructed of cast aluminum and stainless steel, the elegant mail center is designed to last. Existing CBU's can also be easily converted to a Regency. This system comes in a variety of styles, colors, and configurations. Custom Home Accessories, Inc. offers a full line of mailboxes, address plaques, bronze markers, and street signs.

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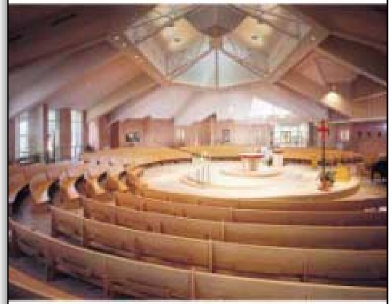
New Holland Church Furniture

Curved Church Pews **800-220-1465**



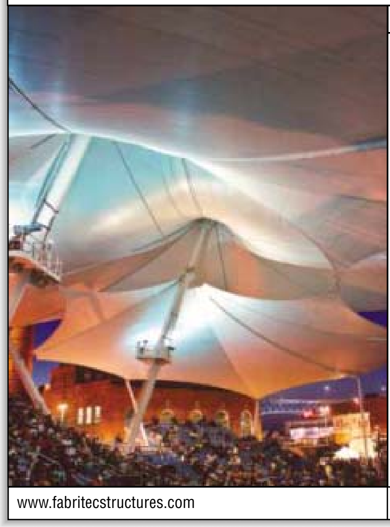
12 Furnishings

Curved pews are "Round For A Reason"™ and are designed and manufactured by New Holland Church Furniture. Curved pews are designed for maximum seating, curved for efficient use of space, designed to enhance worship, created for community, uniting the family of God. New Holland Church Furniture is a certified member of the Architectural Woodwork Institute (AWI), so you can be assured of the very highest quality. Email nhcw@newhollandwood.com.

www.newhollandwood.com ⟳ 180

FabriTec Structures

Tensile Fabric Structures **866-275-9710**



13 Special construction

FabriTec Structures introduces a new generation of tensile fabric technology. Its highly specialized fabric structures utilize the most advanced architectural materials available and are non-combustible, both thermal- and UV-resistant, and can offer full weather protection. With virtually unlimited design options and applications, FabriTec's products are both practical and often visually spectacular. Designers can choose fabrics from a wide range of color and translucency and enjoy a cost effective and "fast-track" alternative to conventional building systems. FabriTec Structures provides clients with complete design/build services, including concept development, engineering, fabrication, project management, and installation.

www.fabritecstructures.com ⟳ 183

Finlandia Sauna Products, Inc.

Precut Saunas **800-354-3342**

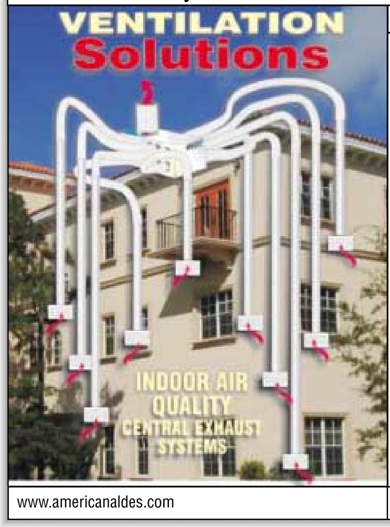
13 Special construction

Finlandia Sauna has manufactured exclusive and authentic saunas since 1964. Finlandia offers precut sauna packages and modular sauna rooms as affordable luxuries that can be included in any remodel or new construction. The company markets four all-clear western softwoods and is the only manufacturer to use 1-in. by 4-in. paneling, instead of the cheaper 1/2-in. by 4-in. material used by others. Finlandia's packages include all room parts, a choice of a Finnish-made electric heater, a prehung door with choice of glass, and all necessary accessories. Finlandia's exciting new heater, the EverReady, is an excellent option for the person always on the go. Fax number 503-684-1120. Email info@finlandiasauna.com.

www.finlandiasauna.com ⟳ 181

American Aldes Ventilation Corp.

Exhaust Ventilation Systems **800-255-7749**



15 Mechanical

American ALDES manufactures central bath and IAQ exhaust ventilation systems for multifamily housing. Similar to the popular ALDES single-family systems, the energy efficient MPV multiport ventilators prevent mold growth caused by activity based indoor humidity levels. The silent and low continuous background ventilation rates are controlled by the MPV Multi's self-regulating air duct system. This guarantees precise IAQ control and energy efficiency for the owner. Installers appreciate the pre-calibrated and self-balancing feature of the MPV system, which saves hours of installation time. Available in many sizes for a variety of applications, a single MPV is capable of ventilating up to 16 bathrooms with a single fan and penetration to the outside.

www.americanaldes.com ⟳ 184

Rocky Mountain Hardware

Card Key Locking Systems

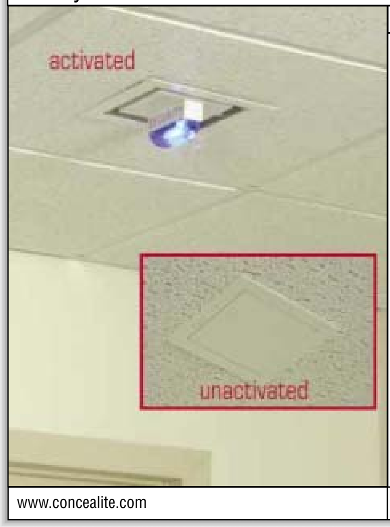
13 Special construction

Rocky Mountain Hardware introduces a unique line of architectural hardware for card key locking systems. Created specifically to meet the needs of boutique hotels and upscale resorts, this new collection is the industry's first hotel locking solution to combine the advanced security features of an electronic locking system with the aesthetic beauty and flexibility of bronze escutcheons and handles. The line features a choice of five standard escutcheon styles that can be combined with one of 28 levers, thus allowing property designers to create their own combinations that blend perfectly with the hotel décor. Custom designs are also available.

www.rockymountainhardware.com ⟳ 182

Concealite Life Safety Products

Security Alarms **507-825-2907**



16 Electrical

Concealite has applied its egress lighting technology to a new product line for the security industry. Secure-Alarm provides a convenient and immediate method to alert critical executives and security personnel of a breach in the facility's secure environment. Upon activation by security personnel, Secure-Alarm will rotate 180° and begin flashing. The flashing strobe can be mounted in the walls or ceiling of rooms or hallways and is only visible upon activation by security personnel. For more information contact Concealite Life Safety Products.

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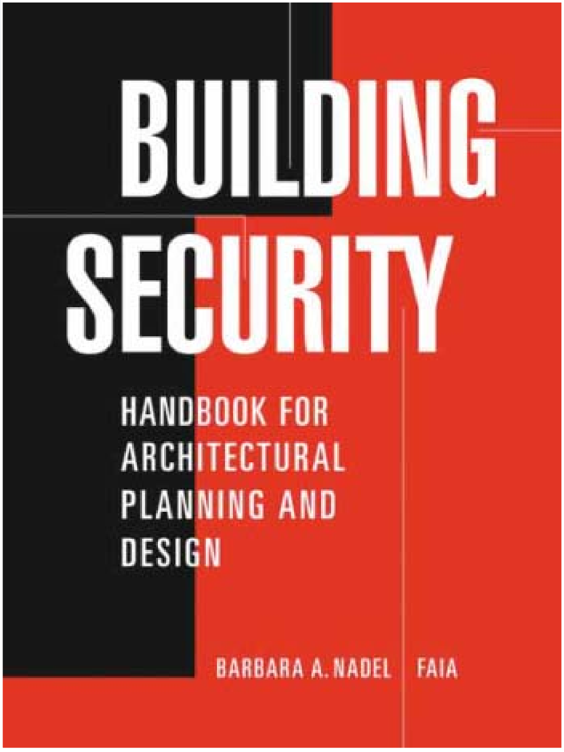
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FACULTY POSITIONS

DEPARTMENT OF ARCHITECTURE
BALL STATE UNIVERSITY
Muncie, Indiana

The Department of Architecture is seeking highly qualified candidates for two tenure-track positions at the rank of assistant or associate professor and one contract position, all available August 19, 2005. These positions will contribute to the Department's transition from an accredited Bachelor of Architecture to the new Master of Architecture (M.Arch.I) professional degree program.

Tenure-Track. Architectural Design + Digital Media. Primary responsibilities: teaching introductory and advanced design, digital media, and fabrication courses, including providing assistance with developing student use of digital fabrication laboratory. **Minimum qualifications:** terminal degree in architecture or a related field; substantial experience with a wide range of 2D, 3D, rendering, CAM, animation, motion graphics, and web design software. **Preferred qualifications:** advanced degree, professional registration and/or significant experience in teaching, architectural design and/or specialized area of expertise.

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The Department of Architecture resides in the College of Architecture and Planning along with Landscape Architecture and Urban Planning. With the Department are housed a first professional architecture degree program, a post professional program, and a program in historic preservation. In the college are three research and outreach units: Buildings Futures Institute, Land Design Institute, and Community Based Projects. Affiliated with the College is the Center for Energy Research, Education, and Service, which maintains close programmatic links with the Department. Also, the College maintains an active community based outreach center in downtown Indianapolis.

Send letter of application describing recent academic and professional accomplishments and experience as well as specifying position of interest, curriculum vitae, names and contact information for at least three academic/professional references, and select examples of scholarly and/or creative work to:

Professor Andrea Swartz
Faculty Search Committee
Department of Architecture
Ball State University
Muncie, IN 47306.
Tel: 765.285.1900; Email: aswartz@bsu.edu

Additional materials may be requested. Review of applications will begin February 1, 2005, and will continue until the positions are filled. (www.bsu.edu/cap)

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The School of Architecture at Yale University invites applications for an appointment as Assistant Professor (full-time ladder or part-time adjunct) beginning in July 2005. Candidates should be qualified to offer graduate and undergraduate level instruction in architectural design as well as be able to offer instruction in areas such as urbanism and landscape, environmental studies, building technology and practice, materials and production, history and theory, or visual representation. Candidates should have a strong record of creative design work as well as a record of scholarship and publication in their particular area of expertise. This position is for an initial term of three years, and will include, beside studio and classroom instruction, service on school committees as well as administrative responsibilities. A letter of application, accompanied by a curriculum vitae and names of three references who may be contacted (do not send portfolios or research material at this time) should be submitted by 20 December to: Chair, Design Search, Dean's Office School of Architecture, Yale University, P.O. Box 208242, New Haven CT 06520-8242. Yale University is an affirmative action, equal opportunity employer. Yale values diversity in its faculty and students and especially encourages applications from women and underrepresented minorities.

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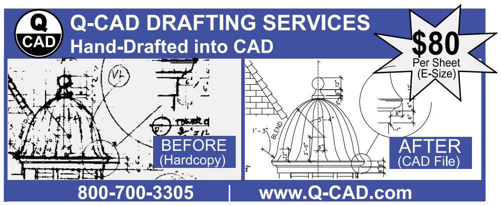

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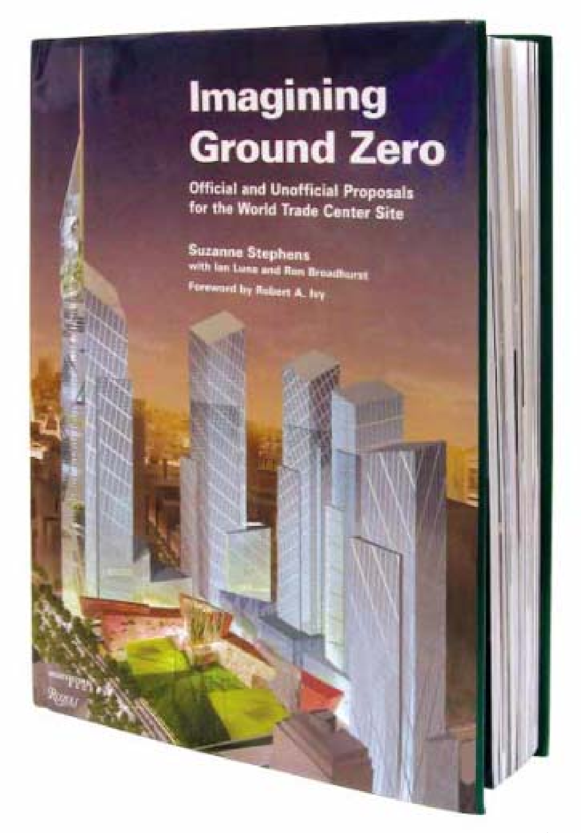
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Suzanne Stephens
with Ian Luna and Ron Broadhurst
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S.J. Rozan: From job meetings came crime-novel characters

Interviewed by James S. Russell, AIA

Over 15 years, S.J. Rozan moved from the practice of architecture to growing success as a crime novelist. She's published eight books in her award-winning series featuring private investigators Lydia Chin and Bill Smith. Her last, Winter and Night, *won the Shamus Award and the crime-novelist's Oscar, the Edgar, for best novel. With the publication of her latest and much more tragic book,* Absent Friends, *she has been able at last to do what all novelists want to do: leave her "day job" at Stein White Nelligan Architects, in Manhattan, to write full-time.*

Q: *Why did you leave the practice of architecture?* I loved what I was doing, but I loved writing fiction more. My office was very supportive of my writing all along, especially Carl Stein. They never demanded that I choose one over the other.

You ran a large, long-running project for the firm. Shepard Hall, at the City University of New York in Harlem [background at left]. It's a huge building covered in what looks like Oxford Cambridge limestone, but which is really terra-cotta that has been failing. The legislature has been funding the gradual replacement of the ornament with GFRC [glass fiber reinforced concrete]. I have been on the job since 1994.

Tell us about your earlier books. The series features a pair of private investigators. Lydia Chin is a 28-year-old Chinese-American who lives with her mother. Bill is the quintessential white-guy private eye. I alternate their voices book by book. Her installments are Chinese-culture related, and his are much darker—they touch on the darker side of American culture, really.

Have you derived characters or situations from practice? The entire situation of *Concourse* came from a client who worked for a nonprofit. He once listed all the scams he knew of or had heard of. I had never thought about how many ways there are to steal from a nonprofit. Characters? I discovered in construction meetings that everyone dresses their character. The way people revealed themselves was really eye-opening. I used that.

Why do few architects appear in your books? Drama is hard to come by in what architects do. However important, it's not like law and medicine, where you have to do something now that affects life and death.

Tell us about your new book. *Absent Friends* is a crime novel, but it's not a mystery. I set it in New York right after 9/11. There's a crime at the heart and an unexplained death in the beginning, and the theme is what the nature of those two things are.

I was struck that you use firefighters as characters to touch on what heroism means. It is risky, because firefighters are so lionized. If you suggest that they may have feet of clay, people get very very upset. I wanted to write about average less-than-perfect people acting heroic every day—that's what firefighters do. That's impressive to me.

How did you use 9/11 in your book? One of the things I wanted to do was to record what it was like in New York right then. It was not like a city at war, not really like a city after a natural disaster. It was completely new. The sense of dislocation and fear and resolve and kindheartedness all needed to be put on paper. And that's what I tried to do in content and in the form, which is disjointed and complex. Because that's how every day was. It was how we felt.

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